User's Guide

PC★MILER® 29

Technology Beyond Miles

alk
A TRIMBLE COMPANY

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PC*MILER® Product Line
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b) For ninety (90) days from date of purchase, the software media on which ALK provides PC*MILER to you will function substantially free of errors and defects. ALK will replace defective media during the warranty period at no charge to you unless the defect is the result of accident, abuse, or misapplication of the product.

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c) Upon expiration of any written supplemental license agreement between you and ALK of which this license is a part.

14. Obligations on Termination: Termination or expiration of this Agreement shall not be construed to release you from any obligations that existed prior to the date of such termination or expiration.

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22. <u>Date</u>: This EULA was last updated on June 4, 2015. Visit www.pcmiler.com for regular updates.

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Welcome to ALK Technologies' PC*MILER! By purchasing a PC*MILER product, you have made a cost-effective investment in the transportation and logistics industry's leading routing, mileage, and mapping software solution. Accuracy, reliability, and stability have positioned PC*MILER as the technology used by 98% of the top motor carriers and 92% of the top freight transportation firms in North America. The U.S. Department of Defense (DoD), the General Services Administration (GSA) and the Federal Motor Carrier Safety Administration (FMCSA) also rely on PC*MILER as their worldwide distance standard. If you're seeking to maximize revenues and minimize costs while utilizing the safest, most cost-effective routing for your vehicles and shipments, PC*MILER is the answer.

PC*MILER is both easy to learn and easy to use. You simply enter an origin, a destination, and any stops in between, and PC*MILER goes to work to calculate truck-specific routing that is displayed on a map. Distances are returned along with time and cost estimates based on adjustable speed, time, and cost parameters. Detailed driving directions and a state mileage summary can quickly be generated with a click of the mouse. Multiple routing options and additional features provide the tools you need to work effectively and productively.

PC*MILER can be used for rate determination and quotes, trip cost and time estimates, dispatch, driver pay calculation, fuel tax reporting, driver log auditing, load planning, carrier selection, freight bill auditing, and logistics analysis.

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1.1 What is PC*MILER?

PC*MILER generates point-to-point mileage, routes, and driving instructions over the complete highway system in North America, including Greenland, Puerto Rico, St. Pierre and Miquelon, and the U.S. Virgin Islands. It can be supplemented with the PC*MILER|Worldwide global highway network as a separate purchase.*

* All instructions for PC*MILER|Worldwide included in this User's Guide pertain only when PC*MILER|Worldwide or DTOD data has been purchased and installed with PC*MILER. PC*MILER|Worldwide data is updated and released yearly <u>after</u> the release of the North America version of PC*MILER.

PC*MILER will calculate an unlimited number of routes and mileage on a single personal computer or a network installation.

PC*MILER calculates point-to-point mileage for an origin-destination pair of locations with intermediate stop-off points. It provides leg and cumulative mileage, time and cost estimates, state/country distance summaries, driving directions, and much more. PC*MILER provides Practical, Shortest, Fastest, and Least Cost routing, as well as additional options in North America for National Network, Toll Discouraged, 53'/102" Trailer and Twins, and Hazardous Material routing and (optionally in the U.S. and Canada) local street networks.

PC*MILER Version 29 includes the following major features:

- **Multiple Route Types and Options** – PC*MILER includes a number of route types and route options to cover a wide range of routing and planning needs.
- **Time-based Routing** – Gives users the ability to define a departure or arrival time for more precise calculation of ETA/ETD.
- **POI & Fuel Stop Search Along a Route** – Provides a POI search tool that enables you to search for POI, including fuel stops and prices, along a route or within a specified radius from within a route window.
- **Optional U.S. DOT Hours of Service (HOS) management**, with HOS rest stops inserted along the route.
- **PC*MILER|Traffic** – Provides an optional traffic data feed for more realistic transit times and real-time, historical or typical traffic displayed on the map *(North America only, PC*MILER|Traffic required)*
- **Least Cost Routing** – Least Cost routing generates several alternative routes based on multiple user-specified trip cost values. *(PC*MILER|Tolls required for toll cost calculation)*
- **Fastest Routing** – In addition to standard PC*MILER Practical and Shortest route types, Fastest routing calculates the quickest feasible way to get to a destination. *(North America only, PC*MILER|Traffic required)*
- **Toll Calculation** with the purchase of the PC*MILER|Tolls add-on. *(U.S. and Canada only)*

- **ALK's RouteSync®** provides a direct link between PC*MILER in the back office and ALK's CoPilot Truck GPS navigation software in the cab. *(RouteSync license purchase required)*
- **The PC*MILER Map,** an "electronic road atlas" for map quality graphics.
- **Reports and maps** that can be exported via clipboard for use with spreadsheet, word processing and database software – including detailed route reports and driving instructions.
- **Route Optimization** to resequence stops in the most efficient order on a route.
- **Point of Interest (POI)** database with customizable categories.
- **Location Radius** – For rate determination and operations planning, this tool lets you search for all cities, ZIP/postal codes and towns within a specified mileage radius around any location.
- **Elevation Discouraged** routing lets users set a customized limit on the elevation of the roads a route will use.
- **User-specified vehicle dimensions** for routing and toll calculation (includes an automobile routing option for vehicles classed less than 9,000 lbs./ 4,082 kgs. and custom vehicle profiles). *(PC*MILER|Tolls required for toll cost calculation)*
- **Custom Routing Preferences** to avoid, favor, or override specific roads, and create and manage multiple sets of routing preferences.
- **Via Points** creation and management for customized routing.
- **Custom Route and Vehicle Profiles** for custom routes and vehicle dimensions you use often.
- **Greenhouse Gas Estimator** – For estimating greenhouse gas emissions by route.
- **Ability to customize place names** to conform to the name of your facilities and customer locations.
- **Import Custom Place feature**, allowing seamless importing of custom address and pickup/delivery information to eliminate manual trip entry.
- A **Drag Route** map feature for instant route customization and visualization.
- **Geofence Tools** – Create geofenced areas on the map and have PC*MILER avoid these areas or send a warning if routes travel in or out of them.
- **Unlimited number of stop-off locations.**
- **Multiple route generation** with on-screen comparison reports to determine the best route.
- **County name designations** for all U.S. locations.
- **Comprehensive height and weight restrictions**, including 53'/102" Trailer or Twins.
- Ability to **point and click on the map** to select origin, stop-offs and destination, plus mouse-driven map customization.
- **Custom cost estimates** for empty/loaded miles.
- **Custom average road speed estimates.**

- **Hub mode** that determines routing, total mileage and state mileage summaries from one origin point to unlimited destinations.
- **State/Country mileage summaries** including ferry miles.
- **Latitude/Longitude routing** that generates point to point routes and mileage between lat/long coordinates.
- **Speed limits** by state/province/estado.
- **Online User's Guide** that is easily accessed from within the application.
- **U.S. Department of Defense compliance.**
- The **complete North American highway network** that includes the United States, Canada, and Mexico plus Greenland, Puerto Rico, St. Pierre and Miquelon, and the U.S. Virgin Islands.
- ALK Technologies' **complete Worldwide Highway Network**, updated yearly to include the most current data available. *(PC*MILER/Worldwide or DTOD data required for global routing)*
- Optional add-on data modules for **street-level addresses and map detail** in the **United States and Canada, Europe, India,** and available countries in **Africa, the Middle East, Oceania** and **South America**. *(PC*MILER/Worldwide required for address data outside North America)*
- Optional add-on data module for **hazardous material routing**. *(U.S. and Canada only; PC*MILER/HazMat add-on module required)*
- Optional add-on data module that provides an **integrated energy-focused map data set** for the oil and gas industry. *(North America only; PC*MILER/Energy add-on module required)*

1.2 What can PC*MILER be used for?

You can use PC*MILER for:

- Truck-specific routing and mileage calculations for Shortest, Practical, Fastest and Least Cost routes, with additional options for Toll Discouraged, National Network, and 53'/102" Trailer routing in North America
- A direct link between PC*MILER in the back office and CoPilot Truck in the cab *(ALK's RouteSync license required)*
- Hazardous material routing for safety and compliance *(with the PC*MILER/HazMat add-on module, U.S. and Canada only)*
- Toll cost calculation *(with the PC*MILER/Tolls add-on module, U.S. and Canada only)*
- Least Cost routing
- Dispatch, including Hours of Service (HOS) management
- Driver pay
- Rate determination
- Instant customer quotes
- Fuel tax reporting
- Trip time and/or cost estimation

- Driver log audits
- Load planning
- Stop optimization
- Carrier selection
- Logistics analysis
- Freight bill auditing
- IFTA and IRP auditing, FHWA safety auditing

1.3 What's New in PC*MILER Version 29?

NOTE for PC*MILER|Worldwide and DTOD Data Customers: Beginning with Version 28, the .1 versions of PC*MILER have been discontinued. PC*MILER|Worldwide and DTOD Data users who historically purchased a .1 version of PC*MILER can now install the base version of PC*MILER and then install PC*MILER|Worldwide or DTOD data as a separate add-on – see section 2.5.5 for installation instructions. This is the same seamless data installation as in the past, only the additional .1 version number has been dropped.

NOTE: Beginning in Version 27, the PC*MILER interface was redesigned and now looks very different from previous versions. For users of Version 26 and earlier who are updating, a Feature Reference Guide provides the new locations for features that you are already familiar with. To access it, select the Windows® **Start** menu > All Programs (or the equivalent in your version of Windows) > PCMILER 29 > *User Guides > Feature Reference Guide*.

NOTE Also: PC*MILER includes an easy way to check for updates from within the application. **Keeping current on updates is important to maintain the usability of your copy of PC*MILER.** See section 16.3, *PC*MILER Updates*.

Version 29 includes the following new features and enhancements:

- *NEW!...* **HOS Manager.** The HOS Manager provides users with the option to incorporate the requirements of the Federal Hours of Service (HOS) regulations into route calculations. Stop times can also be entered in this new dialog, to be used in conjunction with HOS route calculations or independently. See section 3.11. *(PC*MILER/Streets must be licensed and installed)*

- *NEW!...* **Search For POIs Along a Route.** Users can now search for POIs from within a route window, either within a specified radius around a location or corridor along a route. Optionally, the search can target specific POI categories and can include a key word to look for. See section 3.9. *(PC*MILER/Streets must be licensed and installed)*

- *NEW!...* **Search For Fuel Stops and Fuel Prices.** PC*MILER's new POI search along route feature includes the ability to search for fuel stops and

current fuel prices at major providers. See section 3.10. *(PC*MILER/Streets must be licensed and installed)*

- *NEW!...* **Elevation Discouraged Routing**. This new route option enables users to set a customized limit on the elevation of the roads a route will use. See section 9.3.2.

- *NEW!...* **Ferry Discouraged Routing.** In addition to the Use Ferry Distances route option, users can now choose to generate routes that will avoid ferries altogether. See section 9.3.2.

- *NEW!...* **Energy Land Survey Addresses.** Version 29 gives PC*MILER|Energy users access to land survey addresses from the Public Land Survey System (PLSS) and the Dominion Land Survey (DLS) including Land Survey Grids (LSDs). Users can now add land survey addresses as stops on a route, save them as custom places, and display them on the map. See Chapter 13. *(PC*MILER/Energy and PC*MILER/Streets must be licensed and installed)*

- *NEW!...***ALK on the Cloud.** ALK Cloud Services now offers the ability to share and automatically back up customized data between users within their company. It also enables RouteSync users to dispatch routes and trip options to drivers equipped with ALK's CoPilot Truck navigation software on mobile devices.   See Chapters 14 and 15. *(An active internet connection is required)*

- *NEW!...* **Global Road Speed Setting for Energy Roads.** A new category – *Energy Roads* – is included in the **Road Speeds** tab of the Route Options and Default Route Options dialog. Users can now set a global road speed for all Energy Roads. See section 9.6 and 9.7. *(PC*MILER/Energy and PC*MILER/Streets must be licensed and installed)*

- *NEW!...* **Addition of Two More Zoom Levels to the PC*MILER Map.** Zoom levels 19 and 20 have been added to the map for close-up viewing.

- *NEW!...* **Map Display of Temporary Road Closures.** Road segments that have a temporary road closure are now marked with a dashed red bar on the map. See section 10.6.

- *NEW!...* **Installation of PC*MILER on Windows 10 systems.** PC*MILER can now be installed on Windows 10 systems – see section 2.1 for system requirements.

- *NEW!...* **Addition of the U.S. Virgin Islands to the NA Database.** The U.S. Virgin Islands were added to the North American database (includes St. Croix, St. John and St. Thomas).

- *ENHANCED!...* **(PLEASE TAKE NOTE)** **Default "Streets" Mode.** In previous versions of PC*MILER, every new route defaulted to Highway Only mode (*Use Highway Only* option enabled in the Route Options dialog). In Version 29, new routes now default to "Streets" mode if PC*MILER|Energy, PC*MILER|Streets or RouteSync is installed, based on the assumption that local street routing will be used. Default options can be changed in the

Default Route Options dialog (Routes tab > General group > *Defaults*). See section 9.3.2 and 9.7.

- *ENHANCED!...* **Revamped Via Points Manager.** The Via Point Set Manager has been redesigned to make it easier to enter and edit via points on a route. See section 11.4.

- *ENHANCED!...* **Revamped Geofence Manager.** The new Geofence Manager includes a map, enabling users to create and edit geofences from within the Manager. See section 11.6.

- *ENHANCED!...* **Implementation of New NHMRR Routes.** ALK's hazardous material routing database has been updated with designations and restrictions published on July 14, 2014 by the National Hazardous Material Route Registry (NHMRR). *(PC*MILER/HazMat must be licensed and installed)*

- *ENHANCED!...* **"General" Hazmat Route Type Changed to "Other".** For those who use PC*MILER for hazardous material routing, the General route type has been renamed "Other". The new name more accurately reflects the variety of hazardous materials that are suitable for this route type, especially for our customers in Europe. *(PC*MILER/HazMat data must be licensed and installed)*

- *ENHANCED!...* **Improved Organization of Information in the Application Settings Dialog.** The options in the Application Settings dialog have been reorganized into a more intuitive layout. See section 3.5.

- *ENHANCED!...* **PC*MILER|Tolls Discount Program Update.** Three toll discount programs have been removed in Version 29. No new discount programs were added. See Chapter 7 for details. *(PC*MILER/Tolls must be licensed and installed)*

- *ENHANCED!...* **Yearly Database Enhancements and Routing Improvements in North America and Worldwide.** Routing improvements are a major part of each PC*MILER release and each annual version release confirms our commitment to enhancing the quality of PC*MILER's truck-specific routing database. We have added many routing enhancements to improve PC*MILER's truck-specific database, mileage calculations and driving directions.

North America Region Updates
Version 29 integrates the following improvements to ALK's North American highway and local streets database:

- Addition of newly constructed roads and interchanges
- Addition of US Virgin Islands to the North American database (includes St. Croix, St. John and St. Thomas)
- Realignment of the existing road network to GPS standards
- Update and addition of exit interchanges and alignment of ramp structures

- Reclassification of roads where necessary (e.g. changing a road from secondary to primary)
- Addition and confirmation of one way designations on roads to provide safer navigation and guidance
- Update of street-level address changes
- Improvement of city and ZIP/Postal Code placement and alignment
- Specifically for commercial vehicles, additional updates include but are not limited to:
  - Applied urban coding to appropriate city-centers to aid in generating better routes through congested areas
  - Improved highway-level coverage and truck specific through-travel routing within city limits (e.g. keeping drivers on roads designated by local and state authorities as preferred/designated for truck travel)
  - Updated vertical clearance data to accurately model posted limits at railroad crossings and overpasses
  - Verified truck restrictions and allowances (classifications include truck designated roads, truck discouraged roads, height/weight restrictions and allowances, commercial prohibited road classifications, hazardous materials restrictions/ allowances, and others
  - Updated address and road access to intermodal facilities

Worldwide Data Updates

Region Changes and Updates:
- The following countries have been moved from Asia to Europe: Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.
- Afghanistan has been moved from Asia to Middle East.
- The following have been moved from Oceania to Asia: Palau, Solomon Islands, Guam and Northern Mariana Islands.
- Bermuda and Guantanamo Bay were moved from North America to South America.

Additional Worldwide Updates:
- New coverage: U.S. Virgin Islands, British Indian Ocean Territory.
- Data provider for many countries has changed from ALK to HERE (formerly Navteq).

Improved Coverage Highlights:
Coverage in the following countries has been significantly improved:
- **Europe**: Kazakhstan
- **Africa**: Botswana, Egypt, Kenya, Morocco, Western Sahara, Mozambique, Tunisia, Reunion and Zimbabwe
- **South America**: Argentina, Bahamas, Cayman Islands, Chile, Colombia, Costa Rica, French Guiana, Guadeloupe, Martinique, Panama, Paraguay, Peru, Saint Barthelemy, Uruguay, Venezuela

- **Asia**: Hong Kong, Macau, Vietnam
- **North America**: U.S. Virgin Islands, Mexico highway level

- *ENHANCED!...* **Annual Updates of Defaults for US$/CAD$ Conversion Rate and Trip Costs.** In Version 29, the default US dollar/Canadian dollar conversion rate as applied to toll rates (if PC*MILER|Tolls is installed) and default fuel/trip costs are as shown below (in U.S. dollars). See Chapter 7 on toll costs, and section 9.4 on fuel and trip costs.

Cost/Time Parameter	Version 29	Version 28
US$/Canadian$ Conversion Rate (note 1)	$1.00/$1.277	$1.00/$1.051
Fuel Cost Per Gallon (note 2)	$2.78	$3.95
Fuel Cost Per Liter	$.73	$1.04
Fuel Cost Per Mile (Loaded or Empty)	$.43	$.61
Fuel Cost Per Kilometer (Loaded or Empty)	$.43	$.61
Other Cost Per Mile (Loaded or Empty)	$.19	$.18
Other Cost Per Kilometer (Loaded or Empty)	$.12	$.11
Labor Cost Per Hour (Loaded or Empty)	$32.89	$31.64
Greenhouse Gas Estimates (note 3)	22.2	22.2
MPG – Loaded and Empty (note 4)	6.48	6.48

Reference Notes:

(1) As of 3.31.2015, from:
http://www.fiscal.treasury.gov/fsreports/rpt/treasRptRateExch/treasRptRateExch_home.htm

(2) *Transport Topics* 4.13.2015, p. 30

(3) Emission Facts, U.S. Environmental Protection Agency publication EPA420-F-05-003, February 2005, p. 2

(4) James Langley, TMW VP of Business Analytics, 2013, from a survey of 62 North American truck carriers with > 200 mile average haul, totaling 21,000 trucks.

American Transportation Research Institute (ATRI) Reference:

2014 updated study – http://atri-online.org/2014/09/24/an-analysis-of-the-operational-costs-of-trucking-2014-update-report-request/

1.4 The PC*MILER Highway Database

All PC*MILER products are based on ALK Technologies' proprietary computer representation of the North American and Worldwide highway systems. The distances contained in PC*MILER are derived from official highway maps obtained from state, provincial, and national governments, state DOT maps, county maps, local maps, and information received from thousands of industry contacts. All U.S. Interstate, Federal and truck-specific State highways are included.

PC*MILER Version 29 data features thousands of new and updated North American road miles and locations including: **bridges and tunnels**, **border crossings**, **highway exits**, **truck stops**, **state weigh stations**, **CAT Scale weigh stations**, **all year-2015 five-digit U.S. ZIP codes**, all U.S. Department of Defense **military installations**, **commercial truck restrictions** in the United

States, Canada, and Mexico, plus all **highway junctions** and hundreds of thousands of **cities**, **towns**, and **points of interest**.

With the purchase of separate add-on data modules, updated databases of **Canadian Postal Codes**, **SPLC**, and **comprehensive U.S. federal, state, and local Hazardous Material restrictions and designations** are available as well.

In addition, ALK offers several other regularly updated add-on data modules for use with the base PC*MILER product: **PC*MILER|Streets** for address-to-address routing (see below); **PC*MILER|Energy** for oil and gas specific data and facilities; **PC*MILER|Worldwide** for global point-to-point routing; **PC*MILER|Tolls** for toll calculation.

1.4.1 PC*MILER Local Street and International Data

In North America, users have the ability to add street-level detail to generate door-to-door routes and mileage. PC*MILER's local street-level databases, included with the purchase of the PC*MILER|Streets data module, cover the United States and Canada* and include a comprehensive address database, along with related routing options and map detail.

*Note that with the purchase of PC*MILER|Streets, street-level detail in the U.S. comes standard and a separate purchase of the Canadian Street-Level Add-On is necessary to access related data in Canada.*

Also available for purchase is the PC*MILER|Worldwide data add-on to generate point-to-point truck-specific mileage, driving directions and maps over the entire international highway network. PC*MILER|Worldwide includes access to highway data in Africa, Asia, Europe, Middle East, North America, Oceania, and South America. Worldwide data is updated yearly after the base release is completed. Optional street-level data in many countries and regions can be purchased along with a PC*MILER|Worldwide installation.

1.5 Distance Calculation

NOTE for PC*MILER|Streets Users: By default, routes in North America are calculated with the "Use Highway Only" option turned on in the Route Options dialog. This option can affect distance calculation, and may be turned off – see section 9.3.2 for a description of distance calculations for highway-only and street-level routing.

Distances and routing directions are calculated by first determining which roads a vehicle will travel to get between two points and then adding up the distances over each section of road to arrive at a total mileage, similar to the manual task that one might follow if using an atlas.

Routing to all stops will "clean up" to the nearest truck-usable road on the highway or local street network. This local distance equals the short air distance between where the point is plotted on the map and the closest truck-usable road. In the Detailed Route report, which lists every route segment and interchange on a route, this distance may appear as "Local".

1.6 PC*MILER Route Types

PC*MILER offers three basic route types: Practical, Shortest and Fastest. For routing in North America, any of these may be combined with one or more of the three other PC*MILER route types (Toll Discouraged and National Network or 53'/102" Trailer or Twins Routing).

Light Vehicle routing for vans, automobiles, pickup trucks, SUVs, etc. is also available *(North America only)*, and Least Cost routing may be generated for the Practical, Shortest or Fastest route type. See sections 1.6.1 – 1.6.8 below for detailed descriptions of each route type. See Chapter 9 for route options.

1.6.1 PC*MILER Practical Routes

PC*MILER Practical Routes represent distances and driving routes that a driver would normally take to minimize time and cost. Practical Routes model the trade-off between taking the most direct path and staying on major, high quality highways. Interstate highways are given a higher priority than toll roads, which, in turn, are given a higher priority than secondary highways, and so on. Routing instructions and mileage can be used when actual travel distances and directions are needed.

PC*MILER Practical routings consider distance, road quality, terrain, urban/rural classifications, truck-restricted roads, and designated principal and secondary through routes.
In the United States, PC*MILER Practical Route mileage and state-by-state mileage breakdowns can be used to supplement your regular fuel tax reporting documents for many states. Many state audit departments have purchased licenses to incorporate PC*MILER into their audit procedures.

NOTE: A PC*MILER user may still be assessed additional taxes even by those states using PC*MILER in their audit procedures. However, your chances of being assessed additional taxes greatly diminishes by utilizing a computerized mileage system in conjunction with your driver logs, trip sheets, invoices, and bills of lading.

In order to minimize the possibility of significant tax assessments, you must verify that the PC*MILER generated route is the *same* as that reported on your

driver logs and/or trip sheets. In addition, you must add the appropriate vicinity miles to the PC*MILER generated mileage so that the following equation is true:

TOTAL ODOMETER MILES = PC*MILER Miles + Vicinity Miles

NOTE: PC*MILER accounts for some vicinity miles if non-Keypoints (generally postal code locations and/or place names not associated with the downtown metropolitan area) are used as stop-off locations.

ALK Technologies continues to work closely with the member states of the International Fuel Tax Agreement (IFTA) and the International Registration Plan (IRP). Currently many IFTA/IRP states are using PC*MILER as an auditing tool in their fuel and mileage tax audit procedures.

1.6.2 PC*MILER Shortest Routes

PC*MILER Shortest Routes represent distances and driving routes that a vehicle would take to minimize total distance traveled while still following a reasonable route. For instance, Shortest Route mileage and routes will also avoid truck-restricted roads and, in some cases, may favor a beltway rather than traveling directly through a city.

ALK believes, however, that carriers and shippers alike would all be better served by using a mileage tariff based on *actual miles traveled* (i.e. similar to those generated using the PC*MILER Practical Route option), which would more accurately reflect true transportation costs.

1.6.3 PC*MILER Fastest Routing *(North America only)*

(PC*MILER/Traffic must be installed and activated.) In addition to the standard Practical and Shortest routing types, PC*MILER now provides a Fastest routing type. Fastest routing uses any day of the week or time of day information that has been set for a route (these are optional settings for Fastest routing) in conjunction with Inrix® real-time and/or historic traffic data to calculate the quickest route to the trip's destination(s). Users who ship time-sensitive freight can select a Fastest route that may be longer in distance but save time over the standard Practical route.

Additionally, Least Cost routing (see section 1.6.8) now considers Fastest and Fastest with Toll Avoidance route types, increasing the number of routes considered to six. Users can opt to utilize Least Cost routing to select the route that arrives on time but costs the least, using default or user-specified costs.

1.6.4 PC*MILER National Network Routes *(U.S. only)*

The National Network is a U.S. government-designated system of highways originally established by the Surface Transportation Assistance Act of 1982 (STAA).   This routing option is based on the federally-designated National Network system updated in the April, 1992 Code of Federal Regulations, Part 658, Appendix A. The National Network includes the Interstate System (several minor segments are not included), and many selected U.S. and state highways. Highways continue to be added to the National Network by federal and state governments.

PC*MILER National Network routing represents distances and driving routes which are most reasonable and legal for the larger trucks authorized by the Surface Transportation Assistance Act of 1982.

National Network routing stays on the National Network to the maximum extent possible. Given that many areas are not directly served by the National Network, the origin and stop-offs of your route may not be on the National Network. In these cases PC*MILER will take the shortest reasonable path from the origin and stop-offs to the Network.   Detailed Route Reports (driving directions) for PC*MILER National Network routes provide a warning wherever the route is forced to use a non-conforming link. These road segments should be checked before traveling.

National Network mileage tends to be higher than Shortest or Practical mileage.

These designated highways permit, at a minimum, 102" wide, single 48 ft. trailers and 28 ft. double trailers. The Interstate system and most, but not all, remaining designated routes are open to 80,000 pound vehicles. Certain states, notably Arkansas and Mississippi, have designated certain National Network segments with less than an 80,000 pound capacity.

In addition to the National Network highways, *access routes* and *access policies* are components of routing STAA dimensioned trucks. The Federal government has mandated that no state may prohibit travel from the National Network for a minimum of one road mile unless safety restrictions apply. Also, no state may deny reasonable access to terminals and facilities for food, fuel, repairs and rest.

Several states maintain more generous access policies and lists of specifically designated access routes to terminals and facilities. Should you need to travel beyond the National Network and the access roads, you must acquire the proper permit. See *Appendix A* for access rules by state. For detailed information about pre-approved access routes, contact the individual states.

NOTES: PC*MILER's suggested National Network routings are based on official highway maps, the Code of Federal Regulations, and information provided by state governments. It is provided without a warranty of any kind.

The user assumes full responsibility for any delay, expense, loss, or damage which may occur as a result of its use.

See Appendix A, *Access Policies From National Network Routes,* for the current status of National Network access policies. For detailed information about pre-approved access routes, contact the individual states.

1.6.5 PC*MILER 53' Trailer or Twins Routing *(U.S. only)*

Because every mile equals money, PC*MILER offers enhanced routing specifically for 53'/102" trailers or 28' tandem trailers ("twins"). The calculations for these routes are based on National Network routing, with the addition of roads that permit 53'/102" trailers or twins.

The regulations that govern the routing of trucks in North America are a function of weight, height, number of axles, distance between axles, number of trailers, and commodity. These regulations take two principal forms: restrictions and designations. In the case of designations, trucks may deviate from the designated road network, on any road that is not otherwise restricted, to access points of loading, unloading and services.

Under the 1982 U.S. federal law known as the STAA, the most important distinction in truck designations is between 96" wide, 48' long trailers on the one hand and 102" wide, 53' long trailers (and twin 28' long trailers) on the other hand. When the 53' Trailer and Twins routing option is used in PC*MILER, or when a width of greater than 96" or a length greater than 48' is entered into PC*MILER as the vehicle size, PC*MILER's routing algorithm switches to favoring roads designated by the states for "oversize" trucks (over 96" wide or 48' long).
In PC*MILER, the routing designations for the following equipment types are included in the 53' Trailer or Twins (formerly named "53' Trailer") routing category:

- double trailers no more than 28' long and 102" wide;
- semi-trailers longer than 48' or wider than 96", but no longer than 53' and no wider than 102".

Detailed Route and Driver's reports for PC*MILER 53' Trailer and Twins routes warn that a road is "Not Designated" if that road is necessary to reach an origin, destination or stop-off outside of the maximum access distance for that state. In this case the circle that represents the stop on that link in the route window will turn solid red. If the cursor hovers over it a tooltip will tell you what type of warning it is.

See *Appendix A* for state-by-state access policies and an explanation of the criteria that will trigger a "Not Designated 53 Foot" warning.

"Not Designated" Warning in a Route Window and Detailed Route Report

If such a warning appears, then a legal route for 53' equipment is either not possible under current state designations or would be so circuitous that you should either consider assigning smaller equipment or petitioning the state to designate a more direct access route. Users should check the legal requirements on these roads because they vary; for example, delivery may be legal, but stopping for food or services may not be.

If the **Designated Truck Routes** layer in the Map Features dialog is turned on (see section 10.7), the PC*MILER map will display the 53-foot designated network with a blue underlay when the map scale is approximately 1" equals 8 miles or less. This underlay is hidden by default. (Note: If you have the PC*MILER|HazMat module installed and the **Hazardous Material** layer is turned on, you may want to turn it off for a better view of designated truck routes.)

1.6.6 PC*MILER Toll Discouraged Routes

For those who desire to avoid long stretches of toll roads, ALK provides a Toll Discouraged routing option. Toll Discouraged routing will avoid long stretches of toll roads but will not take long, impractical detours to avoid toll bridges and tunnels. For example, a route from Boston, MA to Albany, NY will avoid the Massachusetts Turnpike, but a route from Camden, NJ to Philadelphia, PA will include a toll bridge.

If a Toll Discouraged route needs to travel on a toll road, toll miles will be shown in the Detailed Route and State/Country reports. If PC*MILER|Tolls is installed, toll costs will also be shown, even if toll calculation is disabled for the route.

NOTE: PC*MILER chooses routes by minimizing a cost equation that combines distance, certain factors times distance, and certain fixed factors. When Toll Discouraged is selected for a route, the factor that is multiplied times distance for toll roads is higher than when Toll Discouraged is not chosen. This causes the route chosen to go a somewhat longer distance (all other factors being equal), but not an extremely longer distance, in order to avoid paying a toll.

To see whether the Toll Discouraged option is cost-effective for you or your fleet, you may want to consider using ALK's PC*MILER|Tolls add-on module and PC*MILER|Spreadsheets to analyze how much toll cost you will save versus how much additional mileage and time cost you will incur, for the particular origin-destination pairs that you run frequently. See Chapter 7, *Getting Toll Costs* for more details about PC*MILER|Tolls.

1.6.7 Routing For Different Sizes of Vehicles, and Restriction Overrides

By default, PC*MILER generates routes and mileages for large, heavy trucks of a particular size and weight (in North America, 5-axle tractor-semitrailer combination, 96" wide, 48' long trailer, 13'6" high, 80,000 lbs GVW; routing for 102" wide 53' long trailers and 28' twin trailers is available by checking "53' Trailer or Twins" in the Route Options dialog).   You can route other sizes and weights of trucks by setting vehicle dimensions, choosing among pre-defined vehicle profiles, or creating a user-defined vehicle profile. See Chapter 9, *Using Route Options,* specifically sections 9.2, 9.3 and 9.5.

PC*MILER also includes a routing option specifically for automobiles and other light vehicles (vans, pickup trucks, SUVs, etc.) that relaxes all truck and commercial vehicle regulations (see section 9.5.4).
Additionally, the "Override Restrictions" setting in the Route Options dialog is available. This option relaxes truck restrictions for particular sizes and weights, but still avoids roads that are prohibited to or discouraged for all trucks. If a resulting route uses any roads that have restrictions for particular sizes and weights, the Detailed Route Report will list them. This allows you to determine the largest or heaviest vehicle you can assign to drive that route.

By default Override Restrictions is off, in which case PC*MILER routing will avoid both truck-prohibited and truck-discouraged roads, as well as truck-restricted roads that pertain to the size and weight set in the current vehicle dimensions or profile. In addition, nationwide 13' 6" height restrictions will be taken into account.

1.6.8 Least Cost Routing

In response to the needs of our customers, ALK developed the "Least Cost" routing feature that considers user-specified values for miles per gallon, cost per gallon, fuel cost per mile, maintenance cost per mile, labor cost per hour, and stop cost – and includes a parameter for a greenhouse gas emission estimate. If PC*MILER|Tolls is installed, toll costs are factored in as well. See Chapter 4 for a full description of this routing type.

2

Getting Started

Before installing PC*MILER, please make sure that you have the required hardware and software configuration. All PC*MILER software, databases and auxiliary files are provided with the PC*MILER installation.

2.1 System Requirements

NOTE: Please check for updates regularly to maintain the usability of your current copy of PC*MILER – select the Help tab > *Check for Updates*.

2.1.1 Platforms

- Windows® 7, 8 and 10* running in 32-bit compatibility mode as well as support for 64-bit native applications on Windows 7 and 8 – please see section 2.4 if installing connectivity products on a 64-bit machine
  * **IMPORTANT:** See the note for Windows 10 in section 2.4.
- AS/400
- CICS®/MVS
- UNIX® (AIX, HP-UX, Sun-Solaris) and Linux™
- Citrix® Metaframe and TCP/IP functionality for use with other platforms
- Windows Server® (Windows Server 2012, Terminal Servers, and Server 2008 including Server 2008 R2 running in 32-bit compatibility mode for the PC*MILER user interface and on 64-bit processors for PC*MILER Connect, Mapping, BatchPro, and Spreadsheets)

NOTE: Platforms not supported include: Windows Vista, XP, Server 2000, and Server 2003.

2.1.2 Windows Requirements

Environment:
- Stand-alone PC with a 1.5-2 GHz processor or networked personal computers (LANs and Server/Thin Client Networks)
- 512 MB RAM minimum, 1 GB strongly recommended for standard desktop users. For Citrix and Terminal Server, 200 MB RAM for each user running PC*MILER|Connect and PC*MILER|Spreadsheets.

Other Requirements:

- Minimum screen resolution 800X600
- Color quality settings supported: 16-bit and 32-bit (8-bit & 24-bit not supported)
- Internet connection for license activation (recommended) and access to select features such as Satellite imagery, real-time Traffic data, and updated fuel prices.
- Email address for license activation

NOTE: The hard disk requirements listed below are *approximate*.

PC*MILER:

- PC*MILER – 2.6 GB hard disk space for full install (including all Add-Ons listed below except PC*MILER|Energy, and all Connectivity products)
  - o PC*MILER|Tolls – 50 MB hard disk space
  - o PC*MILER|Hazmat – 50 MB hard disk space
  - o PC*MILER|Streets (U.S. Data) – 1.3 GB hard disk space
  - o PC*MILER|Streets (Canadian Data) – 60 MB hard disk space
  - o Canadian Postal Codes – 50 MB hard disk space
  - o Standard Point Location Codes (SPLC) – 2 MB hard disk space
  - o PC*MILER|Energy – Additional 2.6 GB hard disk space

Connectivity Products:

- PC*MILER|Connect – 8 MB hard disk space
- PC*MILER|Mapping – 5 MB hard disk space
- PC*MILER|Spreadsheets – 3 MB hard disk space
- PC*MILER|BatchPro – 4 MB hard disk space
- PC*MILER|TCP/IP – 3 MB hard disk space

NOTE: PC*MILER|Connect and PC*MILER|Spreadsheets support x86-64 architecture. Our software was not ported to IA-64 architecture although it will still be supported through a hardware compatibility mode.

PC*MILER|Worldwide:

- Worldwide Highway Network Only – 5.3 GB hard disk space
- PC*MILER|Streets Data hard disk space requirements:
  - United States – 1.3 GB
  - Canada – 60 MB
  - Africa – 263 MB
  - Europe – 3.38 GB
  - Asia – 616 MB
  - Middle East – 179 MB
  - Oceania – 189 MB
  - South America – 339 MB

RouteSync™ Requirements:

- CoPilot® Truck™ running on one or more mobile devices and registered with CoPilot Live Messaging
- CoPilot Truck Version 9 supported platforms are: Windows® 7, Windows Mobile, Windows CE, iPhone, iPad, and Android
- RouteSync license key code and street-level data in the US and/or Canada
- TMS solution to dispatch the route to the device
- PC*MILER 27.3 or higher
- PC*MILER|Streets or other confirmed 6-digit precision lat/longs
- Active remote connection on the device (no airplane mode)

These additional components will also be installed:

- Microsoft Visual C++ 2005 Redistributable Package (x86) – 6 MB disk space
- WindowsInstaller-KB884016-v2-x86.exe (x86) – 2 MB disk space
- .NET dotnetfx.exe (x86) – 280 MB disk space

2.1.3 AS/400 Requirements

PC to AS/400 Connectivity Options (Not Provided by ALK):

- PC with a 2+ GHz processor
- Client Access Express V4R4MO or higher, also known as iSeries Access (recommended)
- Supports OS/400, i5/OS and IBMi operating systems; Version 4.2 (V4R2) and higher on IBM AS/400, System i and Power Systems™ hardware.

2.1.4 CICS Requirements

Because PC*MILER-CICS employs a distributed processing solution, the following additional hardware is required to run the software:

- A dedicated PC with a high-end Pentium processor (1.5-2 GHz or greater)
- 512 MB RAM (minimum), 1 GB recommended
- Communication software from Quotium Technologies (formerly ICOM Informatics) called Winsurf+ can be found at www.Quotium.com.

2.1.5 UNIX and LINUX Requirements

Contact PC*MILER Technical Support for more information.

2.2 General Licensing Information

Single-User License

A single-user license can be installed to only **one** PC or workstation locally.

Multi-User License

A multi-user license can be installed to a server environment, on the computer that will be sharing the licenses to other computers. It allows "x" number of concurrent workstation connections to PC*MILER at a time. For example, a 5-User License allows one installation on a central server or PC with as many workstation PCs as you want having access, but only 5 users can access PC*MILER at the same time.

Enterprise License

An Enterprise License allows users to install PC*MILER on any combination of end-user PCs or workstations without license limitations. It's a cost-effective installation and licensing solution for larger companies with several users. It does not require license activation but requires signing an enterprise license supplemental agreement directly with ALK.

Additional Copy License

Users can install PC*MILER locally onto additional PCs by purchasing additional copy licenses. If you purchase 5-copy licenses, you can install PC*MILER locally onto five additional PCs or workstations. If you're installing onto a desktop PC and a laptop, two licenses are needed.

2.3 Installation Types

Non-Network (Local) Installations

A non-network installation allows you to install PC*MILER to a PC or workstation locally, not to be shared with other computers.

Network Installations

A networked installation allows you to install PC*MILER on network file servers where each end-user can save their own option settings or can share option settings that are stored on the server.

NOTE: PC*MILER 29 supports silent installations.

Citrix/Terminal Services Installations

PC*MILER can be installed onto a Citrix Server or Terminal Services environment, if you have purchased a license to do so. Each end-user must have a license to gain access to PC*MILER.

Trial Installation

A trial installation is a 15-day license to access PC*MILER's features and data. It includes an installation of PC*MILER that provides highway-level routing, mileage and mapping, with options for a trial installation of street-level routing, truck-specific toll costs, hazardous materials routing, and/or worldwide routing (access to worldwide routing is only available with PC*MILER|Worldwide). A trial installation cannot be upgraded, it must be uninstalled and reinstalled to add another product or feature.

2.4 Important Installation Notes

Windows 10 Users: Because of an unresolved issue with folder permissions in Windows 10, if you are installing from a network, you'll need to copy the downloaded PC*MILER installation folder to the desktop or C drive and then run the setup.exe from there in order to properly install some of the necessary files.

COM DLL's on a 64-Bit Computer: If you install PC*MILER|Connect or PC*MILER|Mapping Version 29 on a 64-bit computer, you are given the option of using either the 32-bit versions or the 64-bit versions of the COM dll's. To switch between the versions, you can run "Modify" in the setup to make the decision again or run "UseCom32.bat" to switch to 32-bits or "UseCom64.bat" to switch to 64-bits. These .bat files are found in both your PCMILER29/Mapping/com and your PCMILER29/Connect/com folders.

PC*MILER Interfaces: For those who interface any PC*MILER component to a transportation management, logistics management or other third party software system, please contact the vendor directly to make sure that the interface to this new version of PC*MILER is updated and complete before you install.

Access to Updates and Patches: Check the PC*MILER Updater frequently for posted updates and patches applicable to your license type and components. In PC*MILER, go the Help tab > *Check for Updates*.

Microsoft® Windows® 7, 8, 10 and Windows Server 2012 Users: Your license must be installed and activated using an Administrator Account. Once installed, you do not have to *Run as Administrator* provided you install to the recommended default directory or to another directory that doesn't require users to *Run as Administrator*. Additionally, the administrator should grant write permissions to the PC*MILER default directory since some of the newer operating systems require an administrator to grant these write permissions.

2.5 Installing PC*MILER

2.5.1 Single User Local (Non-Network) Installation

NOTE: Have your Product Key Code on hand before beginning the installation process. It will be emailed to you from alkservices@alk.com in an email titled "PC*MILER Software Order…" (Enterprise License customers excluded, see note in Step 5 below.) You should see "Single" in this product key email.

CONVERTING SAVED FILES: To import saved custom settings and files from your previous version of PC*MILER, see section 2.8 before installing Version 29.

NOTE for PC*MILER|Traffic Installation: If PC*MILER|Traffic was purchased, a separate email will be sent with a second Product Key Code and you will need to upgrade the PC*MILER license with this code at the end of the installation. Instructions for installing **RouteSync** and/or **PC*MILER|Traffic** are included as options in the installation instructions below.

NOTE: If you have a Multi-User Product Key Code and need to perform a Single User install, you will need to contact PC*MILER Technical Support for assistance, as a new Product Key Code is needed. If you cannot get in touch with Technical Support at the time of installation, you can install a Single User License by typing "FREE" in the Product Key field. After installing, please contact Technical Support to update your license status.

UNINSTALLING an OLDER VERSION: If you need to uninstall a previous version of PC*MILER on the computer that you are now installing to, you must do it **before** installing PC*MILER 29. If you do not need to uninstall, you can have both versions of the desktop program installed on the same system. Please note that PC*MILER|Connect, PC*MILER|Mapping and PC*MILER| Spreadsheets will be updated to the new version.

BEFORE INSTALLING, please double-check that the emailed Product Key Code(s) lists all purchased components. For example, the code shown below unlocks the following components: PC*MILER|BatchPro, RouteSync, PC*MILER|Tolls, PC*MILER|Streets (U.S. and Canada), and Worldwide highway data.

Order #: SO-000000001
Product Order #: PC*MILER 29
Date: 7/1/2015 10:33 AM
Product Key Code: 3QYKJ-V2KJ7-KJ2F5-82KJ2-KJ2F2
== PC*MILER 29 (Single) BatchPro, Canadian Streets, RouteSync, Tolls, US Streets, Worldwide Data

To install your single-user version of PC*MILER 29, follow these steps:

1. **If you are downloading the installation**, click the provided link in the email that was sent to you from ALK Technologies and follow the instructions in the email.

   NOTE for Windows 10 Users: Windows 10 users installing from a network, please see the note in section 2.4.

   If you are installing using a DVD, place the PC*MILER Install DVD in the DVD or CD/DVD drive and the installation will start automatically. If it does not start automatically, click the Windows **Start** menu. Then, depending on your operating system, either 1) type "d:\setup.exe" and click the search button (if the DVD drive is not the D drive, substitute the letter that designates the DVD drive); or 2) select *Computer > [DVD drive letter] > setup.exe.* See the note for Windows users in section 2.4 if applicable to your version.

2. The InstallShield Wizard **Welcome** screen will open. Click **Next** to review the End-User License Agreement. **NOTE:** Depending on the current status of your Windows operating system, some Windows updates may install automatically before the PC*MILER installation begins.

3. In the next screen, review the license agreement then choose "**I accept…**" If this option isn't selected, the setup won't continue. After selecting it, click **Next** to continue.

4. When prompted, enter a **User Name** and **Company Name** and click **Next**.

5. Enter the **Product Key Code***, or "**FREE**"** for a trial installation. The 25-character product key code will have been emailed from alkservices@alk.com with the subject line "PC*MILER Software Order…". It can be copied from the email and pasted in. If entering the code manually, dashes are not required – dashes, spaces, or no spaces are all acceptable. Click **Next** when finished.
   * NOTE: As a convenience to Enterprise License customers, the Product Key Code is hard-coded into the installation and is valid for each install under the contracted terms.
   ** NOTE: A trial installation cannot be upgraded, you must uninstall and reinstall to add another product or feature.

6. In the next screen you will see a list of the **Licensed Features** that will be installed. Check to make sure all the purchased features are in the list, then click **Next** to continue.

   NOTE for Enterprise Users: If you need to disable product components that came packaged with your installation, see section 2.5.2 below.

7. Now you will see the **Destination Location** where all components will be installed. To install to the default directory* (recommended), do not make any changes and click **Next**. By default, PC*MILER 29 installs directly to C:\ALK Technologies\PCMILER29.

To install to a location other than the default, click **Change** to select a directory. "PCMILER29" is required at the end of any custom path; for example, "C:\PCMILER\Version29\PCMILER29". If this folder is not detected, PC*MILER will add it automatically – see NOTE below. Click **OK** then **Next** to continue.

> **IMPORTANT NOTE:** <u>**DO NOT**</u> attempt to rename your PCMILER29 folder after installation. The "PCMILER29" name is required and renaming it **may cause product failure or unpredictable results**.

8. In the next screen, click **Next** to **Start Copying Files**. To change any settings, select **Back**.

   If you have a previous version of PC*MILER|Connect or PC*MILER| Mapping installed, this alert will appear: "The install found a previous version of Connect (Mapping). These files will be renamed with a .bak extension". If both products were previously installed, you will receive two alerts. Click **OK** in the dialog(s) to continue.

9. Follow through with the rest of the installation. This may take some time depending on the speed of the computer you are installing to. **Do not exit or reboot the computer during the installation.** If any error messages appear, please contact PC*MILER Technical Support – see Chapter 14, *Technical Support and Contact Options*.

10. When the installation is complete, you will be prompted to **view the ReadMe.txt** and to **activate your license**. If you need to use a **Proxy Server** to access the Internet, skip to section 2.5.3, *Activation Using a Proxy Server*. Otherwise, leave these boxes checked and click **Finish** to proceed to the automatic activation (Step 11 below). (**NOTE:** It may take 5-15 seconds for the Product Activation window to open.) When the ReadMe opens, review the information in it and then close the window.

> **IMPORTANT NOTE:** ALK provides a 15-day temporary license prior to completing the activation process. If you make a second attempt to install you will lose this license. If you experience an activation error and need access to PC*MILER before Technical Support is available, please do not attempt a second installation without assistance – you'll be able to use PC*MILER for 15 days without completing the activation.

AUTOMATIC LICENSE ACTIVATION

11. The PC*MILER Product Activation window should be open. (If it is not open, select Start menu > Programs (or All Programs) > PCMILER 29 > *License Status* to open the License Tool window, then click **Activate**.)

If you are an Enterprise License Customer: You can bypass the following license activation steps of the install because you are already activated and registered with ALK. To continue, close the Product Activation window then **proceed to Step 15** to open PC*MILER and start using the application.

If you are not an Enterprise License Customer: If the computer you are installing to has an Internet connection and you have a valid email address, the license activation can be processed automatically. Enter your **Email Address** then click **Activate**. "**Manual Activation**" should be left unchecked.

NOTE: Internet license activation is available 24 hours a day. If you don't have an active Internet connection or email address, please contact PC*MILER Technical Support during business hours for assistance.

12. When the activation process is complete, you will receive a message in the Product Activation window saying, "License Activation Complete!". Close the window to continue. If the activation failed, skip to Step 16 below for manual activation.

13. To verify that PC*MILER is now licensed, go to the Windows **Start** menu > **Programs** (or **All Programs**) > **License Status**. In the PC*MILER License Tool window, verify that "**Licensed**" appears under **Status**. PC*MILER is now activated. If "Licensed" is NOT in the Status field, skip to Step 16 below for manual activation.

    If **PC*MILER|Traffic** was purchased, you can install it now or it can be installed at a later time. See section 2.5.4 below for instructions on how to add the license to your base PC*MILER application.

14. If the automatic activation was completed, close the License Tool window. An email titled "PC*MILER 29 Activation Code for Product XXXXX…" from alkservices@alk.com will be sent to the email you entered in Step 11. You only need to keep this email for your records.

15. To start PC*MILER once the installation is complete, click the PC*MILER icon on the desktop, or click the Windows **Start** menu > **All Programs > PCMILER 29** > **PCMILER 29**.

MANUAL ACTIVATION

16. (You only need to follow these steps if the automatic license activation process failed.) If the automatic activation (Steps 11-12 above) fails for any reason, try manually activating. In the Product Activation window, enter your **Email Address** (and RouteSync password if applicable) then check "**Manual Activation**".

17. Next, click the provided URL for the ALK activation site.

18. You will be taken to the ALK Technical Support "Activate Product" web page, and your PC*MILER product key will automatically populate the **Product Key** fields. Click **Next** to continue.

19. In the next screen, enter your **Email** address and click **Finish**.

20. An email titled "PC*MILER 29 Activation Code for Product XXXXX…" from alkservices@alk.com will immediately be sent to the email you entered.

21. Copy the activation code directly from the Activation web page or from the email sent to you, and paste it into the **Activation Code** field in the Product Activation window.

22. Click **Activate** in the Product Activation window to complete the activation.

23. You will see the message "License Activation Complete!". Close the Product Activation window. PC*MILER is now activated.

24. Start PC*MILER once the installation is complete: click the PC*MILER icon on the desktop, or click the Windows **Start** menu > **Programs** (or **All Programs**) > **PCMILER 29** > **PCMILER 29**.

2.5.2 Disabling Licensed Features (Enterprise Users Only)

If you are an Enterprise User and need to disable one or more features that came packaged with your installation, follow the steps below.

1. Open a command prompt window (for Windows 7, click the Windows **Start** menu, type "**cmd**" and then press **Enter**).

2. In the command prompt window, navigate to the folder containing PC*MILER's setup.exe by typing **cd "C:\your_install_location"**. Example: **cd "C:\alk technologies\pcmiler29"**

3. To launch the install while turning a specific feature off, type the following: **setup.exe "FeatureName1 off" "FeatureName2 off" "FeatureName3 off"**

   For example, to turn off the Connect and Mapping features: **setup.exe** <space>**"Connect**<space>**off"**<space>**"Mapping**<space>**off"**

Features that can be disabled this way are the following (not case sensitive):

- CanPost
- MVSConnect
- AS400
- AS400 Tolls
- BatchPro
- Connect

- Mapping
- TripMatrix
- Spreadsheets
- CanadaStreets*
- Streets*

- TCPIP
- Tolls
- Traffic
- RouteSync
- SPLC

* To turn off North American Streets (includes U.S. and Canadian Streets), use the command: **setup.exe "CanadaStreets off" "Streets off"**.

2.5.3 Activation Using a Proxy Server

To activate PC*MILER using a Proxy Server, follow these steps:

1. When the installation is complete (Steps 1-9 in section 2.5.1 above), uncheck the **Activate** check box and then click **Finish**.

2. Next, start PC*MILER: either click the PC*MILER icon on the desktop, or click the Windows **Start** menu and then select **Programs** (or **All Programs**) > **PCMILER 29** > **PCMILER 29**.

3. Select the Help tab > Windows group > *Proxy Setup.*

4. In the Proxy Setup dialog, check **Use Proxy Server** then enter a **Host** and **Port**.
5. If needed, check **Proxy Authentication** then enter a **Username** and **Password**.

6. Click **OK** to save your settings and close the dialog. PC*MILER is now set up to use the indicated proxy server when connecting to the Internet.

7. Close PC*MILER.

8. In the Windows **Start** menu, select **Programs** (or **All Programs**) > **PCMILER 29** > **License Status** to open the PC*MILER License Tool window, then click **Activate**.

9. Follow the steps in section 2.5.1 for automatic activation, beginning at Step 11.

2.5.4 Adding PC*MILER|Traffic to the Installation

NOTE: A trial installation cannot be upgraded, you must uninstall and reinstall to add another product or feature.

If a PC*MILER|Traffic subscription was purchased, a separate upgrade product key was sent in an email along with the base PC*MILER product key. Follow the steps below to install the PC*MILER|Traffic upgrade after PC*MILER has been installed and activated.

1. If the PC*MILER License Tool window is not already open, select Windows **Start** menu > **Programs > PCMILER 29 > License Status**.

2. Click **Add License**.

3. In the PC*MILER Product Activation window, enter the PC*MILER|Traffic Upgrade **product key** that was emailed to you and click **Add License**.

4. When prompted, enter your **Email Address** then click **Activate**. If RouteSync was installed, you will also be asked to enter the same password as in Step 11 above under *Automatic License Activation.*

5. When the activation process is complete, you will see the message "License Activated Successfully." The upgrade is now complete.

6. You will immediately receive an email from ALK Technologies that contains the new activation code for this upgrade. Keep this email for your records.

7. To start PC*MILER, double-click the PC*MILER icon on the desktop, or select Windows **Start** menu > **Programs > PCMILER 29** > **PCMILER 29**.

2.5.5 Adding PC*MILER Worldwide, Energy or DTOD Data

NOTE: A trial installation cannot be upgraded, you must uninstall and reinstall to add another product or feature.

To install additional PC*MILER|Worldwide*, PC*MILER|Energy or DTOD Data to the base installation of PC*MILER, follow the steps below. The steps assume that, after purchasing the data add-on(s), you either 1) received an email from ALK Technologies that provides one or more URL link(s) to the setup.exe required for the data install; or 2) received an installation DVD which includes the data you are adding (or two DVDs if you purchased Worldwide data).
* i*ncluding PC*MILER|Worldwide Streets data sets.*

IMPORTANT NOTE: Please check that you have the latest updates before installing additional components. Open PC*MILER and select the Help tab > *Check for Updates.*

1. **If you are using a DVD**, insert the DVD and **skip to Step 7** below.

   If you are using the email sent to you by ALK, click the download link at the bottom of the email. The email's subject line will say "PC*MILER 29 Software Order #...". You may see more than one link, depending on what was purchased – begin by clicking the topmost link and follow the instructions in the email.

2. A web page will open and you will be prompted to open or save the PC*MILER zip file. Click **Save** and select a folder where you want to save the zip file.

3. The download will begin. A very small progress bar in the upper right corner of the web page will track the progress of the download. The progress bar will disappear when the download is finished.

4. Navigate to the folder where you saved the zip file, and double-click the file to open it.

5. Click **Extract** at the top of the window that opens to extract the contents of the zip file to a separate folder in the same location. The progress of the extraction will be tracked at the bottom of the window.

6. When the extraction is complete, open the extracted folder and run the **setup.exe** as follows: **For Windows 7** users, right click the setup.exe and select "Run as administrator". **For other operating systems**, just double-click the setup.exe.

7. The PC*MILER Data Installer – InstallShield Wizard will open. Click **Next** to continue.

   NOTE: If an update to PC*MILER is available, you will be prompted to install it before continuing with the upgrade. Click **OK** at the prompt.

8. Select "**I accept the terms of the license agreement**" then click **Next**.

9. A prompt will tell you to select "Add License" in the next screen – click **OK**.

10. After a few seconds the PC*MILER License Tool window will open – click **Add License**.

11. In the PC*MILER Product Activation window, enter the **Product Key** for the purchased data add-on, then click **Add License**. The product key can be copied and pasted from the email that was sent to you at the time of purchase.

12. Enter your **Email Address** in the next screen, then click **Activate**.

13. When the activation is finished you will see a "**License Activation Complete!**" message. Close the Product Activation and License Tool windows by clicking on the "X" in the upper right corner of each window.

14. *(AUP Customers Only)* At this point, you may see a prompt asking if you want to delete the data from the previous quarter. Select **Yes** or **No**.

15. Back in the InstallShield Wizard, you will see a list of all the PC*MILER **Licensed Features** that will now be installed. Click **Next**.

16. Now you will see the **Destination Location** where the new data will be installed. To install to the default directory (recommended), do not make any changes and click **Next**; or click **Change** to change the destination folder. The default destination folder is C:\ALK Technologies\PCMILER29.

17. In the next screen, click **Next** to **Start Copying Files**.

18. At the end of the copying process, a prompt will appear that says "Setup will now create a backup copy of your user.cfg file…". Click **OK**.

19. Click **Finish** in the next screen. Your data add-on is now ready to use.

The title bar of the PC*MILER application window will include the installed data add-ons, and you will see the new data set in the Map tab > Utilities group > *Change Data Set* menu. All installed data sets are listed in this menu, and the data set you just installed will be activated by default. See section 3.6.7 on changing the map data set.

2.5.6 Multi-User Network Installation

NOTE: PC*MILER 29 supports silent installations.

NOTE: Have your **Product Key Code** on hand before beginning the installation process. It will have been emailed from alkservices@alk.com in an email titled "PC*MILER Software Order…" (*Enterprise License customers excluded*) You should see "*X-User*" in the Product Key email, indicating that you have purchased a multi-user license. If not, please contact an Enterprise Solutions account executive to purchase the correct license.

UNINSTALLING AN OLDER VERSION: If you need to uninstall a previous version of PC*MILER on the computer that you are now installing to, you must do it **before** installing PC*MILER 29. If you do not need to uninstall, you can have both versions of the desktop program installed on the same system. Please note that PC*MILER|Connect, PC*MILER|Mapping and PC*MILER| Spreadsheets will be updated to the new version.

CONVERTING SAVED FILES: To import saved custom settings and files from your previous version of PC*MILER, see section 2.8.

NOTE FOR INSTALLING TO A MAPPED DRIVE: For customers who install to a mapped drive (this is rare), do not enter the location by its mapped name. For example, if you mapped C:\Apps to F:\, just use C:\Apps as the install directory when InstallShield asks you for the location. Beginning in Version 28, the Windows program that PC*MILER uses to automate folder sharing cannot share mapped drives by using their mapped name (i.e. F:\ in the example above).

BEFORE INSTALLING, please double-check that the emailed Product Key Code(s) lists all purchased components. For example, the code shown below unlocks the following components: PC*MILER|Connect, PC*MILER|Tolls, RouteSync, PC*MILER| Streets (U.S. and Canada), and Worldwide highway data.

Order #: SO-000000001
Product Order #: PC*MILER 29
Date: 7/1/2015 10:33 AM
Product Key Code: 3QYKJ-V2KJ7-KJ2F5-82KJ2-KJ2F2
== PC*MILER 29 (XX-User), Canadian Streets, Connect, Tolls, RouteSync, US Streets, Worldwide Data

To install PC*MILER 29 on a network, follow these steps:

1. Begin by installing PC*MILER to the server: follow steps 1-9 for a *Single User Local Installation* (section 2.5.1 above).

2. When the installation is done, you will see the screen shown below. Click **OK**.
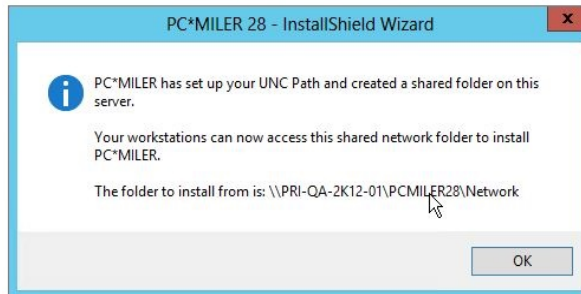
3. You will be prompted to **view the ReadMe.txt** and to **activate your license**. If you need to use a **Proxy Server** to access the Internet, skip to section 2.5.3, *Activation Using a Proxy Server.* Otherwise, leave these boxes checked and click **Finish** to continue. Review the ReadMe and then close the window.

   IMPORTANT NOTE: ALK provides a 15-day temporary license prior to completing the activation process. If you make a second attempt to install you will lose this license. If you experience an activation error and need access to PC*MILER before Technical Support is available, please do not attempt a second installation without assistance – you'll be able to use PC*MILER for 15 days without completing the activation.

4. After you click **Finish**, the PC*MILER Product Activation window will open.

   If you are an Enterprise License Customer: You can bypass the following license activation steps of the install because you are already activated and registered with ALK. To continue, close the Product Activation window. PC*MILER is installed on the server and can be opened by double-clicking the PC*MILER icon on the desktop, or clicking the Windows Start menu and selecting Programs > PCMILER 29 > PCMILER 29.

   If you are not an Enterprise License Customer: If the computer you are installing to has an Internet connection and you have a valid email address, the license activation can be processed automatically. Enter your **Email Address** then click **Activate**. "Manual Activation" should be left unchecked.

   NOTE: Internet license activation is available 24 hours a day. If you don't have an active Internet connection or email address, please contact Technical Support during business hours for assistance – see section 16.1.

5. If the activation is successful, you will see a "**License Activation Complete**" message that directs you to open an email from ALK Technologies for further

instructions. If the activation was NOT successful, try activating manually (Steps 16-23 in section 2.5.1) before calling Technical Support. To contact Technical Support, see section 16.1 in this *User's Guide*.

6. After activation, open the email you received, then follow the instructions for copying the "**net.lic**" file included with the email to the "App" folder in your PC*MILER installation. Net.lic holds the license or user count for your installation. Until you save this file to the designated folder, you will only have a single-user installation. The PC*MILER application is now accessible on the server (see Step 2 below for access options).

INSTALLING ON A WORKSTATION

To install PC*MILER on each workstation, follow these steps:

1. On the workstation, click the Windows **Start** menu and enter the network path to where the workstation setup program resides. This path should match the network path sent to your email address as a result of running the server installation. The only difference is that you will replace "App" with "Network". For example, if this path was sent via the email as "\\PRI-QA-2K332-02\PCMILER29\App\" for the network license file, you will run the workstation installation program from \\PRI-QA-2K332-02\PCMILER29\Network\setup.exe then press **Enter**.

   If you have lost the email that included the network path, you can determine the path as follows: navigate to the server's "PCMILER29" folder, right-click the folder, and go to Properties > Sharing. The network path can be copied and pasted from there.

2. Next, you will be asked to choose your workstation setup options. Two screens will prompt you to select the type of settings you would like to use.

   The setup options in the first screen (Settings Location) are:

   • **Use local setting** – Allows the user at each workstation to customize default options and manage settings, including custom roads and places.

   • **Share network settings** – Provides each workstation the same default options and settings within the application.

   The setup options in the second screen (Settings Data) are:

   • **Use local data** – Installs data to the local workstation. This option can decrease the time it takes PC*MILER to open and begin processing, and reduces network traffic. In general, the performance is better. However, there must be enough hard disk space to accommodate the data.

   • **Share data on your network, default** – This is the default choice. PC*MILER uses the shared data that was installed on the server.

NOTE on Fuel Prices: The feed that keeps fuel prices updated (section 3.10) will be turned off by default because the server will be getting the prices automatically. Ensure that the PC*MILER user interface is running on the server so that fuel prices are regularly updated. For PC*MILER|Connect use, ensure that the PC*MILER user interface is running on the PC*MILER|Connect server.

NOTE for RouteSync Users: Currently only one RouteSync account is allowed per installation. To access RouteSync functionality from multiple workstations, one master RouteSync account must be shared.

3. To start PC*MILER on a workstation once the installation is complete, double-click the desktop PC*MILER icon, or click the Windows **Start** menu and select **Programs** (or **All Programs**) > **PCMILER 29** > **PCMILER 29**.

2.5.7 Citrix and Terminal Services Installations

NOTE: Have your **Product Key Code(s)** on hand before beginning the installation process. They will be emailed to you from alkservices@alk.com in an email with the subject line "PC*MILER Software Order…" (*Enterprise License customers excluded*). "(Citrix/Terminal Services)" will be included in the Product Key email signifying that you have purchased a Citrix or Terminal Services license. If this is not listed, please contact an Enterprise Solutions account executive to purchase the correct license and request one Product Key Code for each individual server you are installing to.

UNINSTALLING AN OLDER VERSION: If you need to uninstall a previous version of PC*MILER on the computer that you are now installing to, you must do it **before** installing PC*MILER 29. If you do not need to uninstall, you can have both versions of the desktop program installed on the same system. Please note that PC*MILER|Connect, PC*MILER|Mapping and PC*MILER| Spreadsheets will be updated to the new version.

Custom places, custom road preferences, and geofence files that were saved in an older version of PC*MILER can be transferred and converted to Version 29. For custom place conversion, see section 3.16.7. For custom road conversion, see section 11.1.7. For geofence conversion, see section 11.6.6.

BEFORE USING PC*MILER: Citrix supports 16 bit and 24 bit color, while PC*MILER supports 16 bit and 32 bit color. A Citrix end user must set the color resolution on their workstation to 16 bit before they log into a Citrix server to run PC*MILER. If an end user has their color resolution set to 32 bit and logs in to Citrix, the Citrix software will adjust it downward to 24 bit prior to loading PC*MILER, and PC*MILER will fail to load.

BEFORE INSTALLING, please double-check that the emailed Product Key Code lists all purchased components. For example, the code shown below unlocks the following components: PC*MILER|BatchPro, PC*MILER|Tolls, RouteSync, PC*MILER|Streets (U.S. and Canada), and Worldwide highway data.

Order #: SO-000000001
Product Order #: PC*MILER 29
Date: 7/1/2015 10:33 AM
Product Key Code: 3QYKJ-V2KJ7-KJ2F5-82KJ2-KJ2F2
== PC*MILER 29 (Citrix/Term Serv), BatchPro, Canadian Streets, Tolls, RouteSync, US Streets, Worldwide Data

If you were using an existing version of PC*MILER with PC*MILER|Connect and/or PC*MILER|Mapping in your Citrix environment, there may be existing files that require deletion. Citrix and Terminal Servers can have multiple copies underneath C:\Users\<username>\Windows, C:\Documents and Settings\ <username>\Windows or in %homedir%\windows like H:\Windows. Copies of the following files should be deleted from any location outside of C:\WINDOWS:

- Pcmserve.ini
- Pcmserve.ctx
- Pmwssrv.ini
- Pmwssrv.ctx

Only a qualified Citrix administrator should be installing PC*MILER on a Citrix system. With Citrix in Install Mode, follow the steps in section 2.5.1, *Single User Local (Non-Network) Installation.*

2.5.8 AS/400 and CICS Installations

Installation instructions can be downloaded from ALK's website Support Center at: http://www.alk.com/support.

2.6 Starting and Closing PC*MILER

To start the PC*MILER application, double-click the PC*MILER icon on the desktop, or click the Windows **Start** menu > **Programs** (or the equivalent on your computer) **> PCMILER 29** > **PCMILER 29**.

To close PC*MILER, choose *Exit* from the red File application menu, press **Alt**+**F4**, or simply close the application window.

2.7 Proxy Setup For Internet Access

The following PC*MILER features require a connection to the Internet:

- License activation
- Software update and patch downloads via the Updater tool
- Real-time traffic data
- Satellite imagery on the PC*MILER map
- RouteSync

For those who need to bypass current security settings to access the Internet while using PC*MILER, the steps to complete the proxy setup are below. The setup can be implemented after PC*MILER has been activated or before activation during the temporary grace period after installation.

1. Open PC*MILER and select the Help tab > Windows group > *Proxy Setup.*

2. In the Proxy Setup dialog, check **Use Proxy Server** then enter a **Host** and **Port**.

3. If needed, check **Proxy Authentication** then enter a **Username** and **Password**.

4. Click **OK** to save your settings and close the dialog. PC*MILER is now set up to use the indicated proxy server when connecting to the Internet.

2.8 Importing Saved Files and Settings From a Previous Version

Saved route files, custom road preferences, custom places, and geofence files can all be transferred from the previous version of PC*MILER (Version 28) to the newly-installed version. Saved route files will be automatically updated when they are opened in PC*MILER 29. For custom place conversion, see section 3.16.7. For custom road conversion, see section 11.1.7. For geofence conversion, see section 11.6.6.

Additionally, a Settings Importer utility is provided that lets you import customized route options, custom road speeds, map feature settings, custom vehicle profiles, custom routing profiles, and general application settings from the previous version.

Here are a few things to note about this utility:

- It will only import from the previous year's release – i.e. from Version 28 to Version 29.
- Settings that change annually, such as currency conversion rate and fuel cost, are not imported.
- The current default values in PC*MILER will be overwritten. For trip options and road speeds, only those values that have been customized in the previous version will be imported.
- The import utility includes a license check and won't run on workstations using shared data. An error message will appear if an import request cannot be processed.

To use the Settings Importer, follow these steps:

1. Select the Windows **Start** menu > **All Programs** (or the equivalent for your operating system) > **PCMILER 29** > **Settings Importer**.

2. In this dialog, uncheck any settings you do NOT want to import.

3. Choose a version from the **Import Settings from Version** drop-down.

4. Click **Import** to proceed with the import (click **Close** if you decide not to proceed). Close the Settings Importer window when the process is complete.
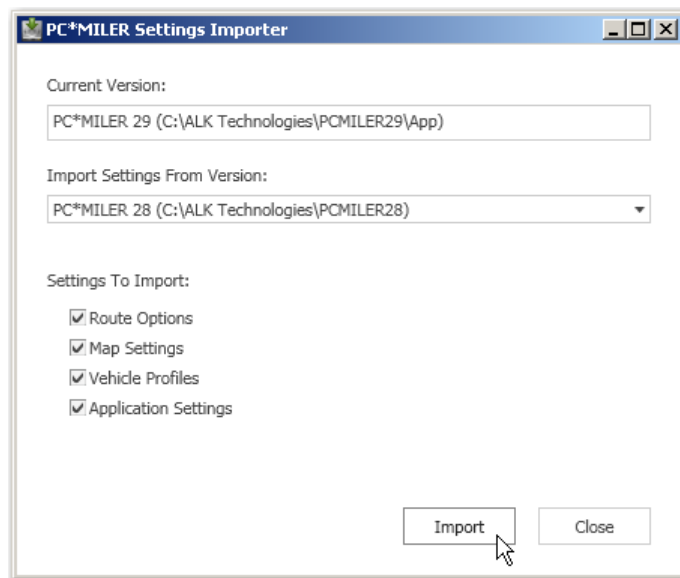
PC*MILER Settings Importer

2.9 Adding New PC*MILER Products

> **NOTE:** A multi-user license cannot be changed to a single-user installation of PC*MILER by simply adding the license – you must fully uninstall, deactivate your multi-user license, then reinstall using the new Product Key Code.

> **NOTE:** To install a PC*MILER|Traffic subscription, see section 2.5.4. To install PC*MILER|Worldwide, PC*MILER|Energy or DTOD data, see section 2.5.5.

You may find that you want to purchase an additional PC*MILER component sometime after the initial installation of PC*MILER.

First, call **PC*MILER SALES** at **1-800-377-6453 ext. 1** (or 1.609.683.0220 ext. 1 outside of the U.S.) 9:00am-5:00pm EST, Monday-Friday to purchase the product(s) and obtain a new Product Key Code to license and install the new product(s).

Once you receive the new product key code, follow the instructions below for a single user or multi-user workstation.

SINGLE USER AND MULTI-USER SERVER INSTALLATION

1. Go to the Windows **Start** menu **> Programs** (or **All Programs**) **> PCMILER 29 > License Status**.

2. In the PC*MILER License Tool window, click A**dd License.**

3. In the PC*MILER Product Activation window, enter the **product key** for the purchased component(s) and click **Add License.**

4. When prompted, enter your **Email Address**. If you are installing RouteSync, you will also need to enter a **Password** and confirm it.

5. Click **Activate**.

6. When the activation process is complete, you will see the message "**License Activation Complete!**". Close the Product Activation window.

7. Back in the License Tool window, make sure all new and existing PC*MILER components are listed under **Licensed Components**.

8. Some components include data that needs to be installed after the license has been activated. These components will appear on the Licensed Components list with an asterisk (for example, "Canadian Postal Codes*"). In this case, follow Steps 9-14 below.

If there are no components that need to be installed, you can close the License Tool window and begin using the newly-added PC*MILER products. Components that do NOT have additional data that needs to be installed include: PC*MILER|Traffic, PC*MILER|HazMat, PC*MILER|RouteMatrix, and RouteSync.

9. **To install newly added components,** go to the Windows **Start** menu > **Control Panel** > **Programs and Features** (or the equivalent on your system).

10. In the list of installed programs, right click PC*MILER 29 and choose *Change*.

11. In the InstallShield Wizard, choose **Modify** and click **Next**.

12. In the next screen, you will see the list of **Licensed Features** (all activated features will be listed – check that the component you are installing is included in the list). Click **Next** to continue.

13. In the next screen you'll see the **Destination Folder** for the installation. Click **Next** to start copying files.

14. When the installation is complete, click **Finish**.

MULTI-USER INSTALLATION, FROM A WORKSTATION

1. Go to the workstation.

2. Browse to the shared …\PCMILER29\network folder on the server.

3. Run the setup.exe and choose "**Modify**".

4. Follow through with the rest of the installation.

2.10 Deactivating and Uninstalling a License

You must fully deactivate the product's license and uninstall all PC*MILER components, including local, network, enterprise, or server installations if you are:

*   Moving any PC*MILER installation to a new computer.
*   Reformatting a computer that PC*MILER is currently installed to.
*   Returning the product.
*   Reinstalling on the same PC.

Here are the steps for deactivating and uninstalling:

1. Go to **Start > Programs** (or **All Programs**) **> PCMILER 29 > License Status** and in the PC*MILER License Tool window click **Deactivate**.

2. In the PC*MILER Product Deactivation window, click **Deactivate**.

3. When the deactivation is complete, you will see a "Deactivation Complete" message, with the deactivated product keys listed below.

4. Close the Product Deactivation and License Tool windows.

5. To uninstall after deactivating, go to the **Start** menu > **Settings** > **Control Panel** > **Programs and Features** (or the equivalent on your system).

6. Highlight **PC*MILER 29**, right-mouse click and select **Uninstall**.

7. Click **Yes** at the prompt to completely remove the application.

8. Click **Finish** when the installation process is complete.

   NOTE: If any messages appear during the uninstall process that say that a certain file cannot be removed, click **OK** to continue.

9. **‼ IMPORTANT STEP ‼** Once the uninstall process is finished, you will need to delete the **…ALK Technologies\PCMILER29** folder manually to completely remove the PC*MILER application from your system. The default location for this folder is C:\ALK Technologies\PCMILER29.

   NOTE: If you deactivated/uninstalled an installation that included PC*MILER components that were licensed and added after the initial installation, you will need to add those components separately again when you reinstall.

2.11 Installation: Frequently Asked Questions

For FAQs related to problems you may have with the installation of your PC*MILER products, please go to www.alk.com/support.

2.12 User Guides, Online Help, and Technical Support

NOTE: You must have Adobe Acrobat Reader on your computer to properly view a PC*MILER product's user guide. If you do not have this program installed already, a free copy can be downloaded from www.adobe.com.

To make Adobe Reader your default reader, from within the application select the Edit menu > Preferences > General and click **Select Default PDF Handler**. Select Adobe Reader from the drop-down, and click **Apply** then **OK** to close the Preferences dialog.

The *PC*MILER User's Guide* can be accessed from within PC*MILER by selecting the Help tab > *Help Index*, by pressing the **F1** key, or by clicking a Help button in any dialog.

To view the user guide for any PC*MILER product without first opening an application, click the Windows **Start** button > **All Programs** (or the equivalent on your system) > **PCMILER 29** > *User Guides* and select one of the .pdf files from the sub-menu.

To search for a keyword or phrase in a user guide, use Adobe Reader's **Find** option in the Edit menu or on the tool bar.

All user guides can also be accessed at www.pcmiler.com/support.

TECHNICAL SUPPORT

ALK Technologies offers one year of free unlimited technical support to all registered users of PC*MILER. See Chapter 15 for contact options.

README FILE

Consult the **ReadMe** file for last-minute product information, updates to the PC*MILER documentation, and additional feature information. To see this file after PC*MILER has been installed, click the Windows **Start** menu > *All Programs* (or the equivalent option) > *PCMILER 29* > *ReadMe*.

2.13 PC*MILER Feature Reference Guide

Beginning with Version 27, the PC*MILER user interface was updated with a new look and feel while retaining the same functionality as in previous versions. The new interface features a ribbon style design, a more organized layout for smoother navigation, and windows that can be floated outside the PC*MILER application to better accommodate your workspace needs. Users of recent versions of Microsoft® Office 2007 and higher will already be familiar with the Ribbon format.

For users of Version 26 and previous versions of PC*MILER who are updating, a reference table in PDF format is provided so you can quickly look up the new way to access features and options that you are already familiar with.

To access the *Feature Reference Guide*, click the Windows® **Start** menu and select All Programs (or the equivalent option for your version of Windows) > PCMILER 29 > User Guides > *Feature Reference Guide*.

PDF documents can be searched for a key word – type the word into the *Find* box on the toolbar. If this box is not visible, select the View menu > *Toolbars > Find*. The drop-down menu off the *Find* box can be used to refine your search.

Chapter **3**

Basic Routing

3.1 The PC*MILER Application Window

When you first open PC*MILER, you'll see an active route window on the left, the PC*MILER map window on the right, and a Ribbon toolbar at the top. The Ribbon contains layered toolbars organized in tabs like a set of file folders. When you click a tab, the attached toolbar becomes visible. Users of recent versions of Microsoft® Office® and Windows® will already be familiar with the Ribbon format.

The options in each toolbar on the Ribbon pertain to tasks that are related to each other. For example, all tools in the Map tab perform tasks related to the map window. In the screenshot below, the Routes toolbar is visible.
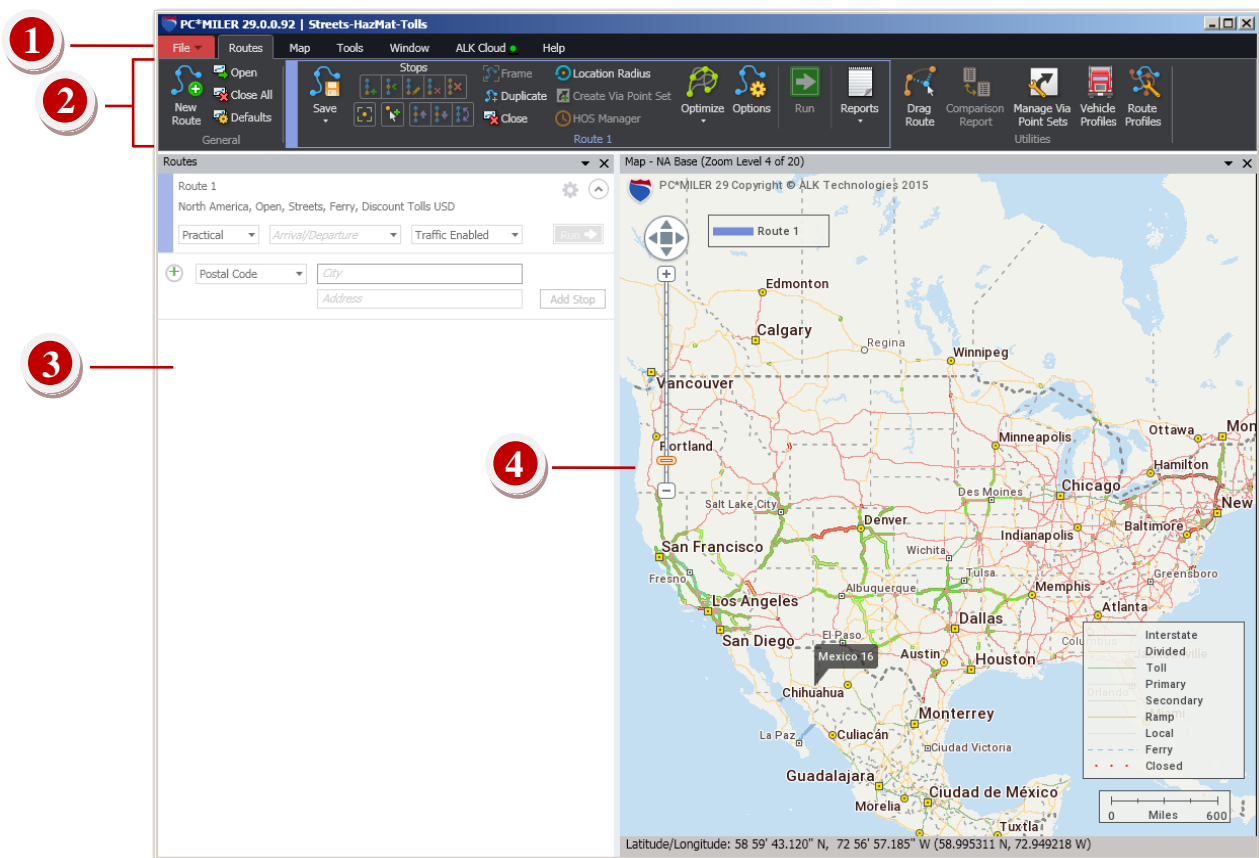
*PC*MILER Application Window*

1 - **The File Application Menu**. Click the red File drop-down to open the PC*MILER application menu. This menu can be used to print and save maps and reports, change application settings, close all open routes or reports, and to exit PC*MILER.

2 - **The Ribbon**, with the **Routes** tab selected. As mentioned above, the Ribbon at the top of the application window contains layered toolbars organized in tabs like a set of file folders. The Routes toolbar provides tools for entering and editing stops on a route, setting route options, and generating routes and reports.

There are six tabs on the PC*MILER Ribbon: **Routes**, **Map**, **Tools**, **Window**, **RouteSync**, and **Help**. The Ribbon can be minimized if needed: right-click on it and select *Minimize the Ribbon.*

Show Quick Access Toolbar below the Ribbon

Minimize the Ribbon
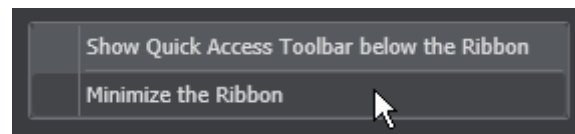
3 - **The Routes Window**. This is a floatable pane that houses all the individual route windows that you create. Up to eight routes can be open simultaneously inside the Routes window. Click *New Route* in the Routes tab > General group to open a new route window in which you can enter stops and then generate costs, miles and time estimates. When there's not enough room to display all open routes, a scroll bar appears on the right edge of the Routes window that allows access to the hidden routes.

4 - **The PC*MILER Map Window**. The PC*MILER map window is a versatile, floatable window that provides a graphical representation of ALK's proprietary highway and local street* network. Each route you run is automatically drawn on the map in the indicated color. (This color is shown on the left edge of each route window, in the Route legend on the map, and on the Ribbon.) Use this window to compare routes, zoom into stops and specific locations, pick stops directly from the map, drag a generated route onto new roads, create avoid/favor preferences, and more.
* Local streets are only available if PC*MILER|Streets is installed.

3.2 Using the Quick Access Toolbar

A Quick Access Toolbar is available in the PC*MILER application window. This is a customizable toolbar that allows you to quickly access some of the features on the Ribbon that you use frequently, without clicking a tab first. The toolbar is only displayed when at least one button has been added to it.

To place a button on the toolbar, right-click the button and select *Add to Quick Access Toolbar*. The toolbar will appear in its default location below the Ribbon.
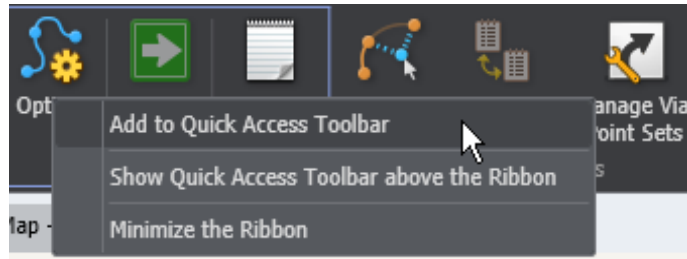
To remove a button, right-click it on the Quick Access Toolbar and select *Remove from Quick Access Toolbar.*
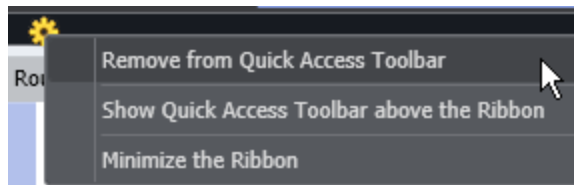
To put the toolbar above the Ribbon, right-click it and select *Show Quick Access Toolbar above the Ribbon*. The Quick Access menu also gives you the option to minimize the Ribbon to increase the workspace in the application window.

Not all buttons can be placed on the Quick Access Toolbar, only buttons that perform an action (e.g. *New Route* or *Options*). Drop-downs (e.g. *Save*) and toggle buttons (e.g. *Avoid Roads* or *Drag Route*) can't be added, but items in a drop-down that have an icon can be. If the Quick Access Toolbar is not available, the option will be disabled in the right mouse menu:
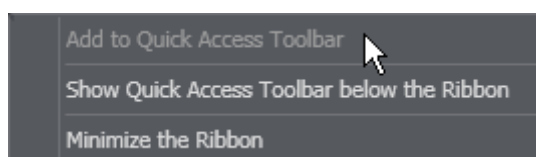
3.3 Window and Layout Options

The three panes in the PC*MILER application window – Routes, Map and Reports – can be arranged in several different layouts. Select the Window tab > Windows group > *Layouts* and choose your preferred layout from the options in the drop-down menu. Use the *Report Location* menu to choose a position for the Reports window. The *Routes Window* and *Map Window* buttons can be used to recover these windows when they have been hidden.
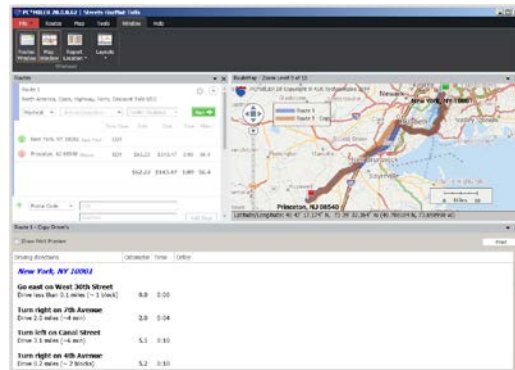
Default Layout
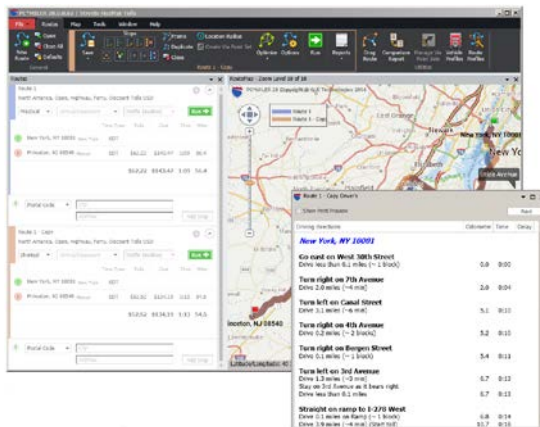
Routes on the Left, Floating Reports
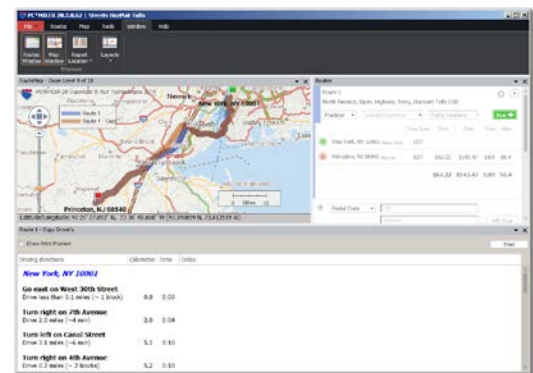
Routes on the Right, Bottom Reports
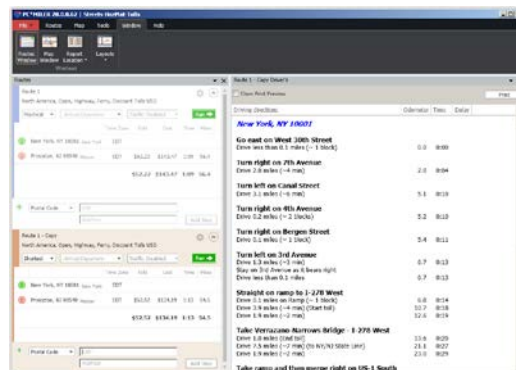
Routes and Reports, Hidden Map

Additionally, these panes can each be manually resized, floated as a separate window, or hidden. Click the down arrow in the window controls and select an option. ▾ ✕

Float	Detaches the pane from the main PC*MILER application window, so that it can be moved around your screen and placed in a convenient position or resized.
Dock	Reverses the "Float" command – the pane will return to its previous position inside the PC*MILER application window.
Hide	Hides the pane. Another way to do this is to simply click the "X" next to the drop-down arrow. To reopen, use the Window tab > Windows group options.

3.4 PC*MILER Shortcut Keys

For those who prefer using a keystroke rather than making a selection with the mouse, PC*MILER provides shortcut keys for commonly-used options. These alternate keystrokes are listed below.

KEY(S)	FUNCTION
F1 or F3	Open the PC*MILER *User's Guide* for help with a feature.
F2	Invoke the Custom Place Manager.
Alt+F2	Invoke the Avoid/Favor Manager.
Alt+F3	Invoke the Route Options dialog for the active route.
F4	Generate a Comparison Report.
F5	Display the Detailed Route Report for the active window.
F6	Display the State/Country Report.
F7	Insert a stop above the one highlighted on the stop list.
F8	Delete the stop that is highlighted on the stop list.
Alt+F8	Delete all stops in the route window.
F10	Generate routes and distances ("Run" in the route window).
Alt+F10	Optimize the stop order for an optimal route.
Alt+Bkspace	Undo typing in any entry field.
Ctrl+S	Save the active route with the existing filename.
Ctrl+Shift+S	Save the active route with a new filename.

Ctrl+C	Copy the open report to the clipboard for use with another program.
Ctrl+N	Open a new route.
Shift+↑	Move the highlighted stop up one line on the stop list.
Shift+↓	Move the highlighted stop down one line on the stop list.

3.5 Application Settings

There are several application settings that affect PC*MILER route calculations and the information that is displayed. To open the Application Settings dialog, click the red File menu > *Application Settings.*
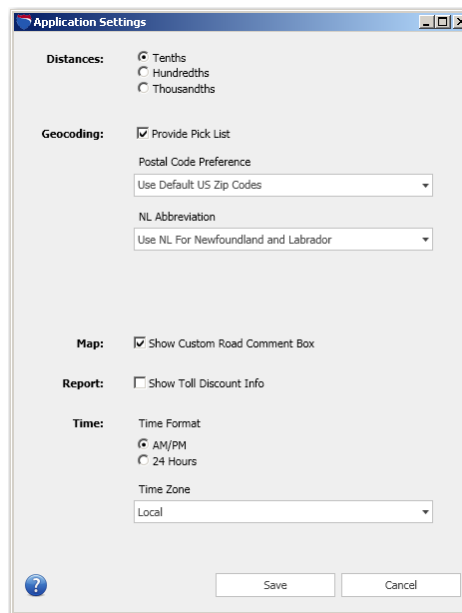
Application Settings Dialog

Options in the Application Settings dialog are:

Distances:

Choose how precise mileage reporting will be. Options are **Tenths**, **Hundredths**, or **Thousandths**. This option affects all reports that include mileage as well as the calculations in route windows.

Geocoding:

Provide Pick List – This option is checked by default. When you enter a stop, it provides a pick list of postal codes when there is more than one instance of the entered location in the database. The order in which locations are listed in the

pick list is based on such factors as population and geographic centrality, putting the most densely populated cities at the top. When this option is not checked, PC*MILER will select the first match that is found in the database.

Postal Code Preference – Use the drop-down to select how PC*MILER handles Mexican and U.S. locations that have the same postal code:

- *Use Default US Zip Codes:* The default U.S. ZIP code will be returned. Mexican codes cannot be entered.
- *Use Default Mexican Zip Codes:* The default Mexican postal code will be returned. U.S. codes cannot be entered.
- *Use Default US and Mexican Zip Codes:* The default U.S. ZIP code will be returned. However, Mexican codes can be entered with "EM" as the state abbreviation; for example, "**50510, EM**".

NL Abbreviation – Choose whether to use the state/province abbreviation "NL" for Nuevo Leon in Mexico or Newfoundland and Labrador in Canada.

Country Abbreviation Format – *(With PC*MILER|Worldwide or DTOD data only)*   Select a country code format to use when entering stops in regions outside North America.

Map:

Show Custom Road Comment Box – Enables the Comment dialog that opens each time an avoid/favor road preference is created. The dialog prompts the user to enter an optional comment. Uncheck this option to disable it (comments can still be entered in the Avoid/Favor Manager).

Report:

Show Toll Discount Info – *(PC*MILER|Tolls must be installed to generate toll costs)*   Check to have a breakdown of toll discount programs shown in the state/country summary section of the State/Country report.

Time:

Time Format – Choose whether times of day should be displayed in **AM/PM** or **24 Hours** ("military") format; e.g. 3:20 PM or 15:20.

Time Zone – Use the drop-down to select how times/dates are reported (local, system, or a specific time zone). This option does not affect how dates/times are calculated. See section 5.1, *Route Generation With ETA/ETD*.

Fuel Prices:

Enable Real-Time Fuel Prices – Enables a real-time fuel price feed that pulls in current prices at the time interval entered below. Fuel prices are shown in the pick list of matches when the user searches for Fuel Stop POIs in a route window – see section 3.10.

3.6 Building a Route

To create a new route, you should be in the Routes tab of the Ribbon. If a blank route window is not visible, open a new route window by selecting the Routes tab > General group > *New Route* or **Ctrl+N** on your keyboard. The elements in a new route window are shown below.

New Route Window
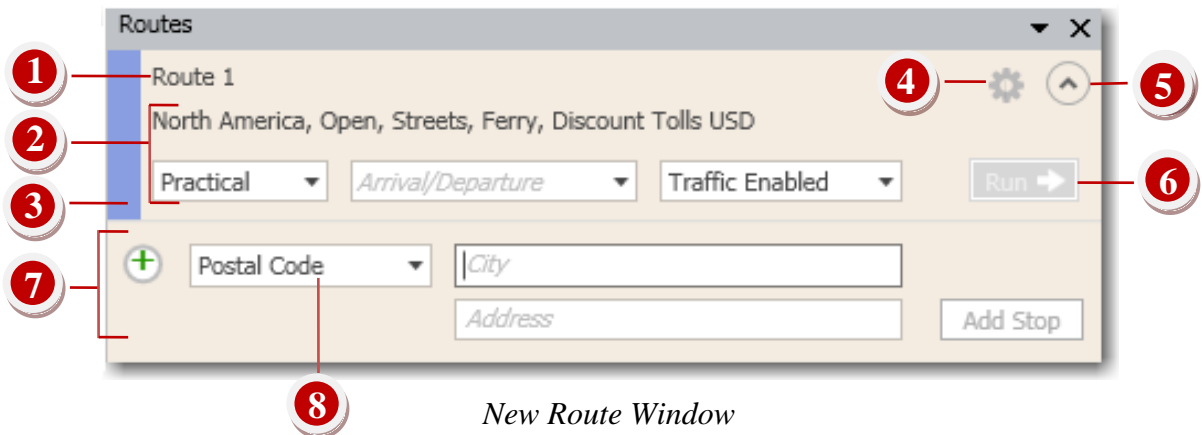
1 - Route Name. By default, each new route is named "Route 1", "Route 2", etc. A custom route name can be assigned in the Route Options dialog (see section 9.1). The route name appears in all reports and in the Route legend on the PC*MILER map.

2 - Current Route Options. Current route options are displayed here, under the route name. The drop-downs below can be used to change the route type, set an arrival or departure time, and enable/disable traffic features. Additional general route options – including the region for PC*MILER|Worldwide or DTOD users – can be changed using the Route Options dialog (see section 9.3).

3 - Color Bar. Each route displays in a different color on the PC*MILER map. A route's color is shown in this color bar, on the Ribbon, and in the Route legend on the map.

4 - Gear Button. Click the gear button to generate reports, access the Route Options dialog, access RouteSync (if installed), and to float, dock or close the route window.

5 - More/Less Button. Use this button to toggle between a fully expanded and a minimal view of the route window.

6 - **"Run" Button.** When at least two valid stops are entered for a route, this button turns green. Click it to generate distances, costs, and time estimates.

7 - **Stop Entry.** Stops are entered here in the *City* field. If PC*MILER|Streets is installed, an address can also be entered in the *Address* field. Click **Add Stop** or press **Enter** on your keyboard to validate the stop and add it to the stop list for this route.

8 - **Stop Type Drop-down.** The stop type defines the type of input that will be accepted in the *City* field.

3.6.1 Stop Entry

VERY IMPORTANT For PC*MILER|Worldwide and DTOD Users: You must have the **proper region** selected in the Route Options dialog when you enter stops on a route. See section 3.6.5 on region selection. Also see section 3.6.7 on changing the data set if you are entering local street addresses, and section 10.2 to frame the correct region on the map.

To generate distances and driving instructions for a route, you need to specify at least two stops – an origin and destination. An unlimited number of stops may be entered. PC*MILER will always treat the stop at the top of the stop list as the origin of the route and the last stop on the list as the destination, unless you are generating hub distances (see section 9.3.3). As you add stops, each one will be placed below the previous stop on the list, creating the stop order from origin to destination.

To enter a stop, follow these steps:

1. Select the Routes tab > General group > *New Route* or the **Ctrl+N** keys.

2. Make a selection in the stop type drop-down.

3. In the *City* field of the new route window, type a location using any valid format (see the list of formats below); a street address can be included in the *Address* field if PC*MILER|Streets is installed.

4. Click **Add Stop** or press the **Enter** key on your keyboard.

5. If a pick list of locations appears, highlight your choice and click **OK**.

6. If the location you entered is valid, the stop will appear above the *City* field in a stop list. For a stop to be valid, there must be a match in the PC*MILER database. If an error is returned, see section 3.6.25. To enter an arrival or departure time, see Chapter 5. To set options for a route, see Chapter 9.

You can input a city, town or location in any of the formats that are listed below:

- City name, followed by a comma or space and the state abbreviation (see section 3.6.2 below). A street address may be included if PC*MILER|Streets data is installed (see section 3.6.4). Spelling help is available (section 3.6.9).

- 5-digit ZIP or postal code (section 3.6.10-11). Postal code help is available.

- 6-digit Canadian postal code (if the separate add-on data module is installed – see section 3.6.12). Postal code help is available.

- *(North America only)* SPLC (if the separate add-on data module is installed – see section 3.6.13 –14). SPLC help is available.

- Point on the PC*MILER map – point and click with the mouse (section 3.6.24)

- Latitude/longitude point (sections 3.6.17-18 and 3.6.24)

- Custom places, and for U.S./North American locations, border crossings, highway junctions, highway exits, truck stops, CAT scale or state weigh stations (sections 3.6.15-3.6.22 and 3.16).

- *(North America only)* Point of Interest (POI) – search for POIs from within the route window, with a general search or targeting specific types of POI such as Fuel Stops or HOS Stops (see sections 3.9-10).

TIP on DATA MATCHING: To confirm that your location data matches the PC*MILER database, please see section 3.16.5, *Importing Custom Places.*

3.6.2 City Name and State/Country Abbreviation

To enter a city or town using the city/state format, "Postal Code" should be the stop type. Type the city name and two-letter state/province/country abbreviation in the *City* field, then click **Add Stop** or press the **Enter** key on your keyboard. The city name can be any length. The city and state/country do not need to be capitalized, but do need to be separated by either a comma or a space.

Examples: **chicago, il   chicago il   paris,fr** *(PC*MILER|Worldwide or DTOD users only)*
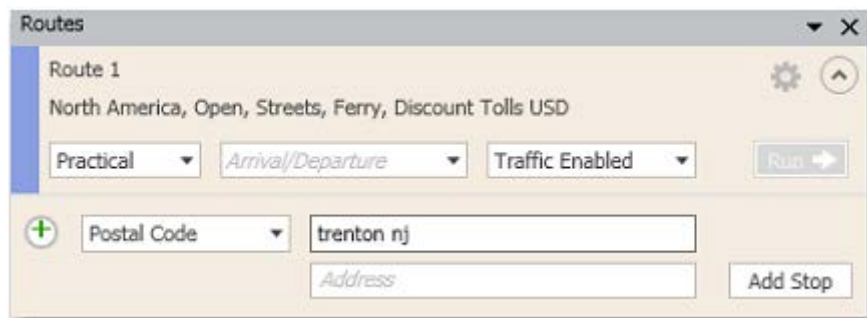
Entering Trenton, NJ as a Stop

If the city name contains two or three words, each portion of the city name must be separated by spaces. For example:

> **los angeles, ca**
> **salt lake city ut**
> **belle croix,fr** *(PC*MILER|Worldwide or DTOD users only)*

After you click **Add Stop**, PC*MILER will search through the database for a location that matches the city name you entered. If multiple listings are found in the database for the same location, a scrollable pick list will open. Highlight your choice and click **OK**.

If your entry was valid, a stop list will open above the *City* field and the stop you entered will be displayed along with a time zone:
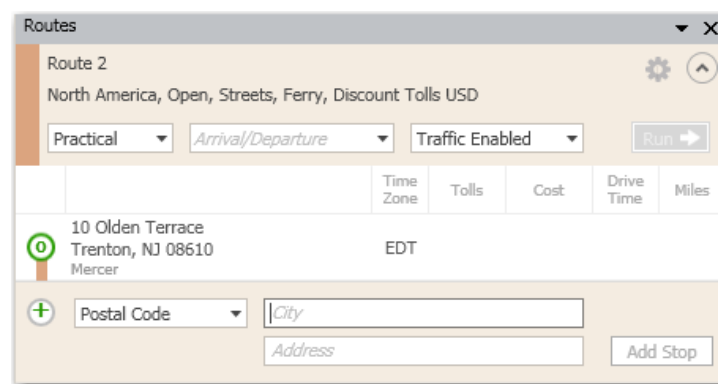
Stop List Populated With a Stop

If you want to have PC*MILER pick a default match rather than open a pick list of multiple postal codes, select the File application menu > *Application Settings,* then uncheck **Provide Pick List** and click **Save**. By default "Provide Pick List" is checked and if there is more than one location for a city name, the most densely populated city will appear at the top of the pick list, with an alphabetical listing of other cities below.

If you are unsure of the correct spelling for a city name, spelling help is available – see section 3.6.9. To look up state/province/country abbreviations, see *Appendix C* in this user's guide.

If PC*MILER|Worldwide or DTOD data is installed, country abbreviations outside North America may be entered using FIPS 2-character, ISO 2-character, ISO 3-character, GENC 2-character or GENC 3-character codes. FIPS codes are accepted by default. To use another format for stop entry, select the File application menu > *Application Settings*. Choose an option from the **Country Abbreviation Format** drop-down list.

3.6.3 Entering Mexican and Canadian Locations

Mexican place names can be entered using a postal code, or a city name plus a two-letter abbreviation. (See *Appendix C* in this user's guide for a complete list of Mexican estado abbreviations.) Examples of Mexican locations:

puerto vallarta, ja
99250

Some Mexican and U.S. locations have the same postal code assigned to them. The way PC*MILER handles Mexican versus U.S. postal codes in these cases is determined by the setting in the Applications dialog. (Select the File application menu > *Application Settings*, and use the **Postal Code Preference** drop-down.) Possible options are described below, but note that if **Provide Pick List** is checked below the drop-down, a pick list of Mexican and U.S. locations will always open if both are in the database.

- *Use Default US Zip Codes:* The default U.S. ZIP code will be returned. Mexican codes cannot be entered.

- *Use Default Mexican Zip Codes:* The default Mexican postal code will be returned. U.S. codes cannot be entered.

- *Use Default US and Mexican Zip Codes:* The default U.S. ZIP code will be returned. However, Mexican codes can be entered with "EM" as the state abbreviation; for example, "**50510, EM**".

Canadian postal codes can be entered only if the separate PC*MILER Canadian Postal Codes add-on data module is installed. With this module installed, a pick list of Canadian postal codes will be invoked when a Canadian place name is entered that has multiple postal codes assigned to it – provided that **Provide Pick List** is checked in the Application Settings dialog (File application menu > *Application Settings*). See section 3.6.12 on entering Canadian postal codes.

If the postal code data module is not installed, Canadian place names can only be entered using the city name and province abbreviation, for example:

montreal, qc

See *Appendix C* in this user's guide for a complete list of Canadian province abbreviations.

NOTE: "**NL**" is recognized as Newfoundland and Labrador unless this setting has been changed to mean Nuevo Leon using the Application Settings dialog (File application menu > *Application Settings*).

NOTE Also: To enter a location name that includes one or more accented letters (for example, Felipe Ángeles, CI), either 1) use the postal code, or 2) use the Insert > Symbol option in Microsoft® Word or Excel® to type the location name and then copy and paste into the route window in PC*MILER.

3.6.4 Address Entry *(PC*MILER|Streets only)*

(Applies only in countries for which Streets data has been purchased, and the correct map data set must be selected – see section 3.6.4) If PC*MILER|Streets address data is purchased and installed with PC*MILER, you can – optionally – specify a street-level address in the *Address* field. PC*MILER will route to each address, and addresses will be labeled on the map when you run your route. Addresses can be added to a city/state or postal code entry. An address can also be combined with a latitude/longitude point for more precise geocoding – see section 3.6.18.

If, when entering a stop, you enter an address when the "**Use Highway Only**" route option is enabled in the Route Options dialog, a warning that says *"Highway Only route option enabled"* will appear above the stop list. This warning reminds you that a route won't use local streets unless the highway-only option is turned off. To delete the warning, click the "X" on the far right. To use local streets in routing, select the gear button ⚙ > *Options*, uncheck **Use Highway Only**, then close the Route Options dialog.
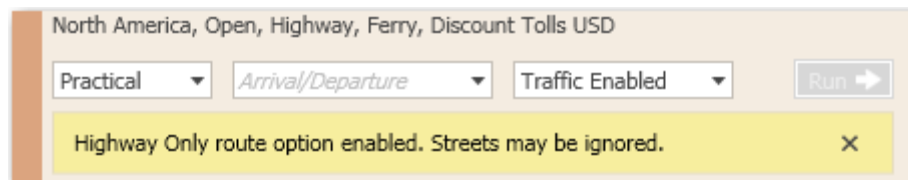
"Highway Only" Warning in a Route Window

To look up synonyms for street type abbreviations that PC*MILER will accept (for example, "Blvd" for "Boulevard"), see *Appendix D* or the **synonym.typ** file located in the PC*MILER installation folder (usually in C:\ALK Technologies\PCMILER29\ Data\Info).

In North America, address data is available for the US and Canada. With PC*MILER|Worldwide installed, address data is also available in Europe, India, and available countries in Africa, the Middle East, Oceania and South America. The appropriate data set must be selected – see sections 3.6.6-8 below.

For PC*MILER|Worldwide Users: In addition to having the correct region and data set selected, you may need to frame a different map region – see section 10.2.

NOTE: The pick list setting in the Application Settings dialog determines how PC*MILER handles incomplete or inaccurate street names that are entered in the route window. Select the red Application Menu > *Application Settings* to see this setting. If **Provide Pick List** is unchecked, the first approximate match that is found in the database (if there is one) will be returned. When **Provide Pick List** is checked (this is the default setting), a pick list will open and you can choose an address from it.

TIP: If you enter a ZIP/postal code and PC*MILER can't find an address that you specify within that code, try expanding your search by entering the city name. In general it is recommended that, when entering or importing addresses, you use the corresponding city/state instead of the location's postal code. (For example, enter "457 North Harrison Street, Princeton, NJ" rather than "457 North Harrison Street, 08540".) Using the city and state/province will increase the geocoding "hit rate" and provide a more accurate representation of the address when routing.

3.6.5 Changing the Region *(PC*MILER|Worldwide and DTOD only)*

If the PC*MILER|Worldwide or DTOD data add-on module is installed, the **correct world region** must be selected in the Route Options or Default Route Options dialog when entering stops. In each route entry window, the currently selected region is displayed under the route name. To change the region for the active trip, select the Routes tab > Route group > *Options* or click the gear button in the route entry window and select *Options,* then choose a region from the **Region** drop-down in the **General** tab of the Route Options dialog.

To change the **default region** for all trips, select the Routes tab > General group > *Defaults* and choose a region as described above. Now every route entry window you open will be set to the region you selected.

If the wrong region is selected (i.e. it does not match the stop you are attempting to enter), normally either an error message will appear or your input will be matched with a city by the same name in the selected region; for example, if you enter "Paris, FR" when your region is North America, "Paris, AR" will be returned as a stop. The currently selected region is always displayed above the route name in the route entry window.

However, with PC*MILER's **trans-regional routing**, in certain cases the above rule does not apply. Because routing between Europe, Asia, Africa, and the Middle East is possible, locations may be entered that do not match the selected region when any of these regions are selected. For example, entering "Paris, FR" will return the correct stop if Asia or Africa is the selected region.

You may also need to change the map window to the desired region if you wish to see graphic displays of the routes you run. Select the Map tab > View group > *Frame* > *Regions* > and choose a region from the sub-menu.

NOTE: **Options are set for each region separately.** PC*MILER remembers the options you last used for each region. When you change regions, all options that were previously used for the new region will become active. To create your own custom default settings for each region, select the Routes tab > General group > *Defaults*.

3.6.6 Changing the Country Format *(PC*MILER/Worldwide and DTOD only)*

Worldwide country abbreviations may be entered using either FIPS 2-character, ISO 2-character, ISO 3-character, GENC 2-character or GENC 3-character codes. FIPS codes are accepted by default. To use another format for stop entry, click the File application menu and select *Application Settings*, then choose an option from the **Country Abbreviation Format** drop-down list. For a complete list of worldwide country abbreviations, see *Appendix C*.

3.6.7 Changing the Data Set
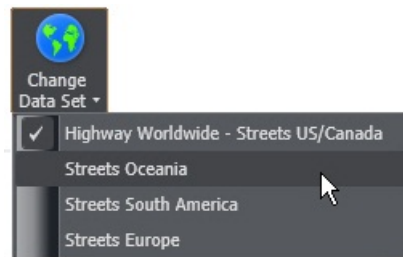
Change Data Set Menu (with PC*MILER/Worldwide installed)

Select the Map tab > Utilities group > *Change Data Set* > to change the version of the map data that PC*MILER uses to calculate routes. The currently loaded data set will be displayed in the title bar of the map window, shown at the bottom of each page in any generated reports in Print View, and selected with a checkmark in the *Change Data Set* menu.

For ALK's Annual Update Program (AUP) Licensed Users: For PC*MILER (North America only), the options in the drop-down will include the base version data set plus any mid-year versions that have been released since the base version, including PC*MILER|Streets U.S. and Canadian street-level data if installed.

For PC*MILER|Worldwide Users: PC*MILER|Streets data modules are available for local street addresses in Canada, the United States, Europe, and some countries in Africa, Asia, Middle East, Oceania and South America. Each module may be purchased separately or in combination with other data sets. The correct data set must be activated before you enter an address. When you activate a data set, the correct region will automatically select in the Route Options dialog.

Note that Streets data sets in world regions outside North America may not include coverage for every country in the region. Therefore, when such a data set is selected, routes can't be run within or across countries not included in the Streets data set. The Worldwide Highway data set must be used to run

routes to/from countries that are not covered in the Streets data set. For more on worldwide data coverage, see *Appendix I.*

For PC*MILER|Energy Users: You will see the NA – Streets Canada Energy data set in the *Change Data Set* menu.

3.6.8 Pick List Option

By default, when you enter a stop that has multiple listings in the database, a pick list of matching locations will open. The order in which locations are listed in the pick list is based on such factors as population and geographic centrality. The most densely populated cities that match your entry will be at the top of the pick list.

If you want to have PC*MILER pick a default postal code or address rather than open a pick list, select the File application menu > *Application Settings.* In the Application Settings dialog, uncheck **Provide Pick List**, then click **Save**.

When "Provide Pick List" is turned off, if a city name has multiple postal codes or other database entries, the PC*MILER default match will be the first exact match that is found in the database.

3.6.9 Spelling Help

If you're not sure how to spell a city name, or if you received an error message when entering a city and state abbreviation, try getting spelling help as follows:

1. In the *City* field of a route window, type the first letter or first few letters of the city name followed by a comma or space and the two-letter state/ province/estado abbreviation. Note that typing more letters of the city name (i.e. two or three rather than just one) will decrease the processing time needed to create a list of matches.

    Examples: **chi,il   los ang, ca   pa fr   los a,ca**

2. Click **Add Stop** or press **Enter**.

3. A pick list of possible matches will open unless this option is turned off in the Application Settings dialog (File application menu > *Application Settings*). Scroll the list if necessary and highlight the city or ZIP/Postal code that you wish to select, then click **OK**.
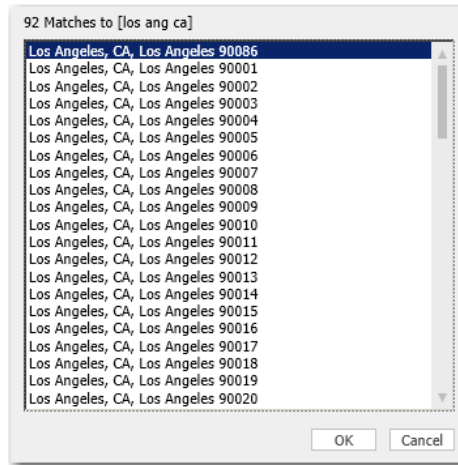
Pick List of Matches for Spelling Help

3.6.10 Entering ZIP/Postal Codes

IMPORTANT NOTES for PC*MILER|Worldwide and DTOD USERS: When you are entering postal codes outside of North America, you need to enter a country abbreviation to avoid being routed to the wrong country in cases where the same postal code exists in more than one country.

Enter the postal code, a comma, and the correct two-letter country abbreviation; e.g. "**46001, sp**" for Valencia, Spain. Remember that the **correct region** must be selected in the Route Options dialog (see section 9.3.1). Not all countries have postal codes in the database. Users can import absent postal codes as custom places if needed. For the format of postal codes in PC*MILER|Worldwide regions and various countries in those regions, see *Appendix H*.

Entering any valid postal code creates a search for the corresponding city. The city name will be entered as a stop, along with the state abbreviation and postal code. If you enter **08540** *(NA region)*, PC*MILER will return: **08540 Princeton, NJ, Mercer**.

NOTE: If the +4 ZIP code designation is entered, PC*MILER will ignore it.

3.6.11 ZIP/Postal Code Help

If you're unsure of a particular postal code or if you receive an error message when entering a postal code, do the following:

1. In the *City* field of a route window, type at least the first two digits of the postal code. For postal codes outside North America, enter a country code as well. Examples: **60** or **606 fr**.

2. Click **Add Stop** or press **Enter**.

3. A pick list of all matching codes will be returned unless this option is turned off in the Application Settings dialog (File application menu > *Application Settings* > *Provide Pick List*). Scroll the list if necessary and highlight the city or ZIP/postal code that you wish to select, then click **OK**.
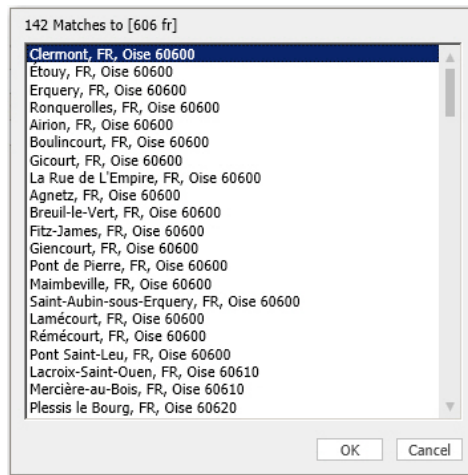
Pick List of Matches for "606 fr" Entry
(with PC*MILER/Worldwide licensed and installed)

3.6.12 Canadian Postal Codes

If the Canadian Postal Code add-on data module is installed, six-digit Canadian postal codes can be entered as stops. The codes are always alphanumeric in the format "**ANA NAN**" where "A" represents an alphabetic character and "N" represents a numeric character.

Entering any valid Canadian postal code will invoke a search for the corresponding city and province name, and these will be entered as a stop along with the postal code.

If you enter: **K7L 4E7**   PC*MILER will return: **K7L 4E7 Kingston, ON**

For help with Canadian postal codes, you need to enter at least 3 digits.
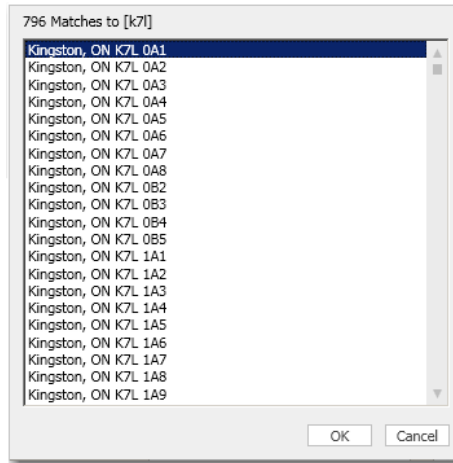
Canadian Postal Code Help

3.6.13 SPLC Entry *(North America only)*

If the SPLC add-on data module is installed, a SPLC can be entered as a stop for any location in North America that has a SPLC assigned to it. SPLCs may be six or nine digits in length.   SPLC data used in PC*MILER products is owned, maintained and copyrighted by the National Motor Freight Traffic Association, Inc. To enter a SPLC, do the following:

1. Select *"SPLC"* from the drop-down list to the left of the *City* field.

2.   Type your entry and click **Add Stop** or press **Enter**.

NOTE: If you enter a SPLC when *"SPLC"* has not been selected in the drop-down list, you'll get an error message. **When *"SPLC"* is selected, you won't be able to enter other types of locations.**

3.6.14 SPLC Help

If you need help finding the correct SPLC for a particular location, a pick list of SPLC can be invoked. First **make sure that "SPLC" is selected in the drop-down** to the left of the *City* field, then type at least the first two digits of the SPLC and click **Add Stop**.

A pick list will be generated unless this option is turned off in the Application Settings dialog (File application menu > *Application Settings*).
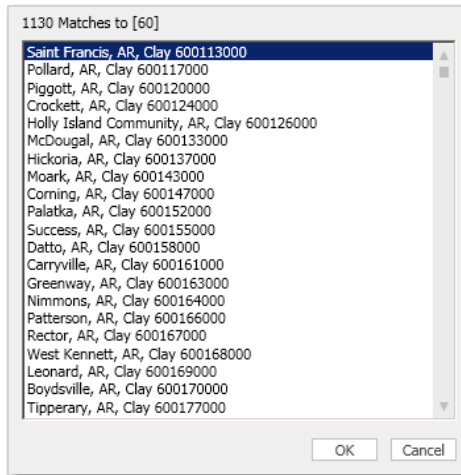
SPLC Help

3.6.15 Border Crossings *(U.S. only)*

You can enter a U.S. state border crossing as a stop on a route using the PC*MILER border crossing naming convention. To quickly locate all possible border crossings between two states, use the [*] wildcard character. For example, for a pick list of all Pennsylvania/New Jersey border crossings, enter:

!njpa*, nj
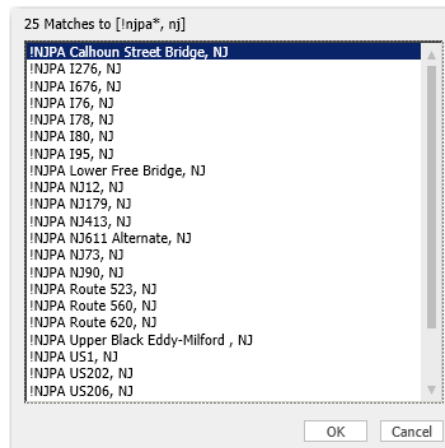
Pick List of NJ/PA Border Crossings

NOTE: A pick list will only be generated if **Provide Pick List** is checked in the Application Settings dialog (File application menu > *Application Settings*). By default, this setting is turned on.

Border crossings have the following syntax:

!XXYY Name, XX

where **XX** is the two-letter abbreviation of the state that is first in alphabetical order, **YY** is the abbreviation of the state that is second in alphabetical order, and **Name** is the route name of the route that crosses the border.

In cases where the road name is different on either side of the border, the road name used is the one that lies within the state first in alphabetical order.

3.6.16 Highway Junctions *(North America only)*

PC*MILER allows you to access highway junctions between major road types in the United States, Canada, and Mexico. (Note, however, that there are some highway junctions which are **truck-inaccessible**. These junctions will not be recognized as stops.) The best way to enter a highway junction is to invoke a pick list of matches. Type "+" (a plus sign) followed by a comma and the state abbreviation. For example, enter

+, in

to generate an alphabetical list of all highway junctions in Indiana. Scroll the pick list, highlight your choice, and click **OK**.

1483 Matches to [+, in]

```
+I164 IN62, IN
+I164 IN66, IN
+I164 IN662, IN
+I164 US41, IN
+I265 IN111, IN
+I265 IN311, IN
+I465 IN37 N, IN
+I465 IN37 S, IN
+I465 IN431, IN
+I465 IN67 E, IN
+I465 IN67 W, IN
+I465 US136, IN
+I465 US31, IN
+I465 US36 E, IN
+I465 US36 W, IN
+I465 US40 E, IN
+I465 US40 W, IN
+I465 US421, IN
+I465 US52, IN
+I469 IN1 N, IN
+I469 IN1 S, IN
```

OK   Cancel
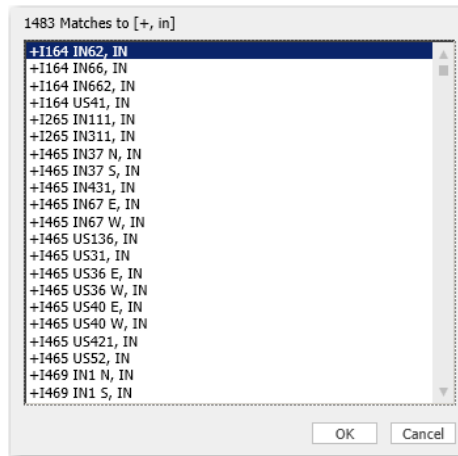
Pick List of Highway Junctions in Indiana

NOTE: A pick list will only be generated if **Provide Pick List** is checked in the Application Settings dialog (File application menu > *Application Settings*). By default, this setting is turned on.

The format for junction names is as follows: the first route name is the lower numbered one, the second route name is the higher numbered one, and the route

names are followed by the abbreviation of the state in which the junction is located. An example of this is:

+I 469 IN 37, IN

In cases where two junctions by the same highway pair occur within the same state, the junctions are designated by a location direction (N,S,E,W) relative to the location of the other junction. For example:

+US231 IN 66W, IN is located one mile west of **+US231 IN 66E, IN**

3.6.17 Latitude/Longitude Points

There are several ways to enter latitude/longitude points as stops on a route in PC*MILER. Stops that are lat/longs are labeled in the map window just like other stops.

Lat/longs can easily be entered using the map. When you pass your cursor over the map without pressing the mouse button, its **latitude/longitude position is automatically tracked** and appears in the status bar in the lower left corner of the map window. With the lat/long you want to enter displayed in the status bar, right click the map and choose *Copy Latitude/Longitude* from the menu, then click in a route window's city field and paste (**Ctrl-V** or *Paste* in the right mouse menu). Note that it's easier to copy lat/longs accurately at higher zoom levels.
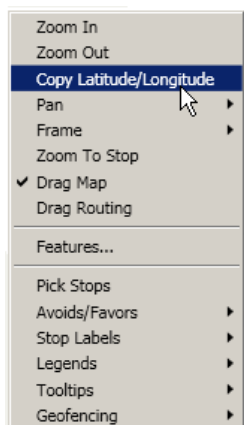
Right Mouse Menu
*Off the PC*MILER Map*
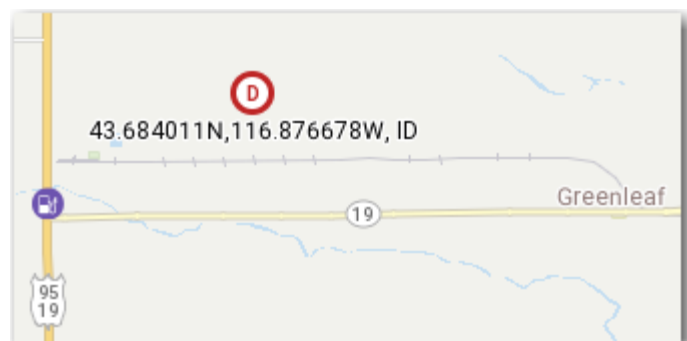
Lat/Long Point as a Destination on the Map

Lat/longs can also be entered from the map using Pick Stops mode. To turn this mode on, select the Routes tab > Route group > *Pick Stop on Map* button or right click the map and select *Pick Stops,* then click on the point you want to enter.

Additionally, latitude/longitude points can be entered manually or imported (see section 3.16.5 on importing) in **degrees minutes seconds direction** format (e.g.

0401750N,0742131W) or **decimal degrees** (e.g. **40.123N,100.333W**) – see the instructions at the end of this section on formatting.

<u>Degrees-minutes-seconds format:</u>
In degrees-minutes-seconds format the latitude and longitude are each 8-character strings in the following format:

Characters **1-3**	specify the degrees (be sure to include leading zero if required)
Characters **4-5**	specify the minutes
Characters **6-7**	specify the seconds
Character **8**	**N**, **n**, **W**, or **w**, with N's for latitude and W's for longitude

Latitude and longitude must be separated by a comma WITHOUT A SPACE. In general the format for a point is: **dddmmssN,dddmmssW**.

<u>Decimal degrees format:</u>
In decimal degrees format, latitude and longitude are strings of up to 8 characters representing a decimal number with up to 3 decimal places. No leading zeros are required. The decimal point counts as one of the characters. Latitude and longitude must be separated by a comma WITHOUT A SPACE. In general the format for a point is: **dddd.dddN,dddd.dddW**.

<u>Converting between formats:</u>
To convert from degrees-minutes-seconds to decimal degrees use the following formula: $\mathbf{dddmmssN} \rightarrow \mathbf{ddd} + mm/60 + ss/3600$.

<u>Decimal degrees format:</u>
In decimal degrees format, latitude and longitude are strings of up to 8 characters representing a decimal number with up to 3 decimal places. No leading zeros are required. The decimal point counts as one of the characters. Latitude and longitude must be separated by a comma WITHOUT A SPACE. In general the format for a point is: **dddd.dddN,dddd.dddW**.

3.6.18 Latitude/Longitude With Street Address

For more precise geocoding and directions, latitude/longitude points can be combined with street addresses as in the example shown below. This functionality geocodes the lat/long to the nearest point on the particular street in the address, rather than to the nearest street in the direction of travel, as would be the case for a lat/long by itself. If the lat/long is more than .5 miles from the street in the address, an error message will be returned.
The minimum input when using this combination should include the lat/long plus a street name. Including a street address will provide more precise geocoding.

NOTE: "**Use Highway Only**" must be turned off in the Route Options dialog in order to geocode to a street that only exists in the street-level network.
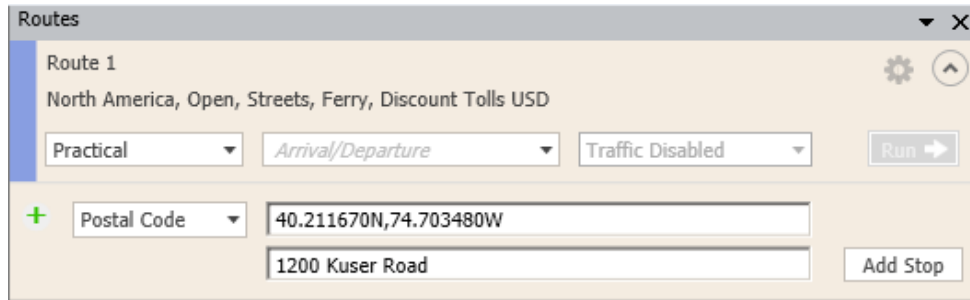
Stop Entry Using a Latitude/Longitude With an Address
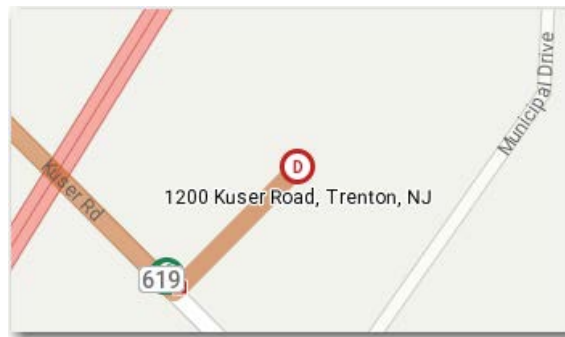
Kuser Road Lat/Long and Address on the Map –
Routes to a Point Off Kuser Road (Route 619)

3.6.19 Truck Stop Locations *(U.S. and Canada only)*

Truck stops can be entered as stops on a route like other places in the PC*MILER database. The syntax for a truck stop starts with an "at" symbol [@], then the truck stop name, and the state or province in which the truck stop is located.

You can search for truck stops within a radius or along a route using the POI search tool in a route window – see section 3.9.

To generate a pick list of truck stops in a particular state, use the [@] symbol, a comma, and the state/province abbreviation. For example, for truck stops in Georgia you would enter:

@, ga

Or to speed up a search for a known truck stop, use the first letter of the truck stop's name. For example, to generate a pick list of all truck stops in Georgia beginning with the letter "C" that are in the PC*MILER database, enter:

@c*, ga

Truck stops are represented on the map by gas pump icons.
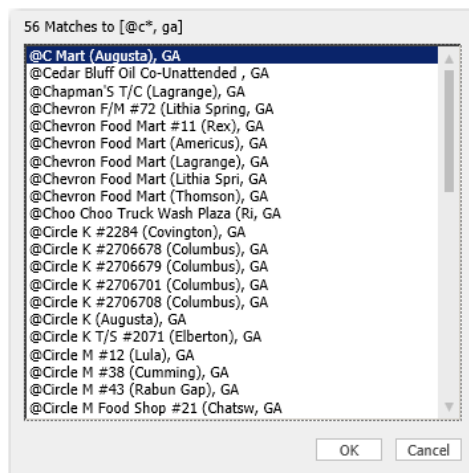
Pick List of Truck Stops in Georgia

3.6.20 Highway Exits *(U.S. only)*

PC*MILER includes all Interstate-to-Interstate exit numbers. It also includes all Interstate exits leading to non-Interstate highways. You can search for highway exits within a radius or along a route using the POI search tool in a route window – see section 3.9.

To generate a pick list of highway exits in a particular state, enter "**^**" (**Shift-6**) followed by a comma and state abbreviation to bring up a pick list of all highway exits in that state. For example, to create a pick list of all exits in New Jersey, enter:

$$\textbf{^, nj}$$

You can also enter an exit directly. For example, you could type "^I 80 E x273, pa" to enter Exit 273 off Interstate 80 East in Pennsylvania. No spaces are necessary, but the east/west designation must be included. For example, valid entries would be:

^I-90 w x35, ny
^I 90w x35, ny
^I-90wx35, ny
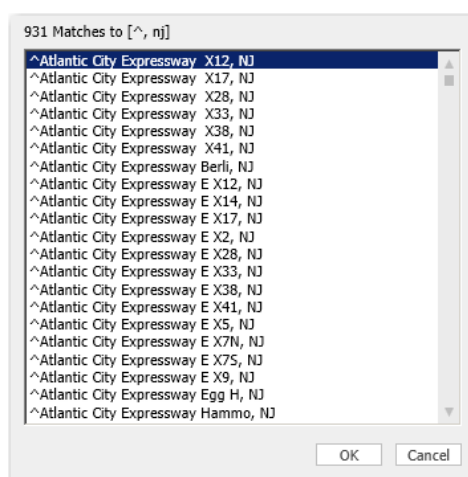
Pick List of Highway Exits in New Jersey

3.6.21 CAT Scale Weigh Stations *(U.S. and Canada only)*

CAT Scale weigh station locations may be entered as stops on a route. To enter a weigh station, you can type its location in the *City* field preceded by a pound sign (#). An example is:

#Petro Stopping Center, NJ

To bring up a pick list of all CAT weigh stations in a particular state, enter a pound sign followed by a comma and the state abbreviation. For example:

#, nj

To find CAT weigh stations within a specified radius of a location or along a route, use the POI search tool (see section 3.9). CAT Scale weigh stations are represented on the map by a cat icon.

NOTE: A pick list will only be generated if **Provide Pick List** is checked in the Application Settings dialog (File application menu > *Application Settings*). By default, this setting is turned on.
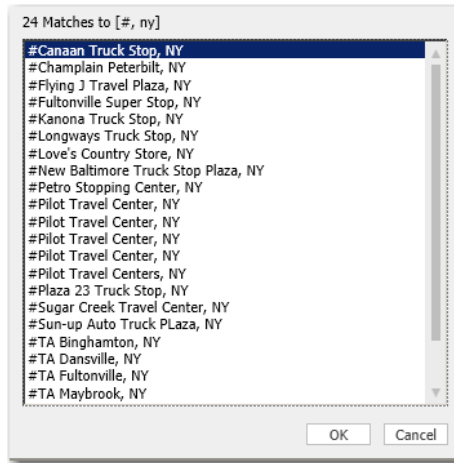
Pick List of CAT Weigh Stations in New York

3.6.22 State Weigh Stations *(U.S. only)*

You can also search for and enter state weigh stations as stops. You can search for state weigh stations within a radius or along a route using the POI search tool in a route window – see section 3.9. To search for all weigh stations in a particular state, use a dollar sign ($). For example:

$, nj

will bring up a pick list of all state weigh stations in New Jersey.
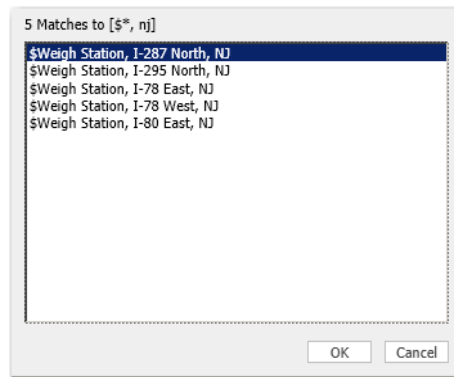
Pick List of State Weigh Stations in New Jersey

NOTE: A pick list will only be generated if **Provide Pick List** is checked in the Application Settings dialog (File application menu > *Application Settings*). By default, this setting is turned on.

3.6.23 Entering An Arrival or Departure Time

The ability to generate more precise estimated times of arrival/departure is a feature added in Version 25 of PC*MILER, and is described in Chapter 5, *Time-Based Routing*. See section 5.1 for detailed instructions about how to enter a departure or arrival time and date or day of the week.

3.6.24 Picking Stops From the Map

TIP: Pass your cursor over the map without pressing the mouse button. Notice that its lat/long position is automatically tracked and appears in the status bar in the lower left corner of the map window.

Stops can be entered directly from the PC*MILER map window by pointing and clicking with the mouse. To pick a stop, do the following:

1. Select the Routes tab > Route group > Stops > *Pick Stop on Map* button; or select *Pick Stops* from the right mouse menu off the map.

2. In the map window, the cursor will now be in the shape of a hand. Use the mouse to point to the location you wish to enter and click once. The location will be entered as a stop in the currently active route window.

3. Alternatively, use the right mouse menu in the map window to select *Copy Latitude/Longitude* to copy the lat/long displayed in the status bar of the map window, then paste into the city field of a route window as a stop (**Ctrl-V** or right click > *Paste*). Note that it's easier to copy a lat/long accurately at higher zoom levels.

You can use the mouse to select any point on the map. If the point is a node on a highway, the place name will be returned; otherwise, a latitude/longitude position will be returned.

NOTE: There are some highway junctions which are truck-inaccessible. These junctions won't be recognized if you try to enter them as stops.

3.6.25 Input Errors

One of several error messages might be returned when entering stops. The most common one is "No matching city found". If you encounter an error message, you should try the following:

- Double-check that you separated the city name and state abbreviation with a comma or space.

- Double-check for typos and spelling errors.
- Make sure that the stop type matches your input. If entering a SPLC, make sure that "*SPLC*" is selected in the drop-down list to the left of the *City* field.
- Get spelling help (see section 3.6.9).
- Use the exact postal code or get ZIP/postal code help (see section 3.6.11).
- See *Appendix C* for a list of valid state/province/estado abbreviations.

In all cases, the ZIP/postal code takes precedence over the city and state/province/estado name. Certain suburbs or small towns may not have their actual names in the database, but rather the name of the larger nearby city. In these cases, the ZIP or postal code for the smaller community will have to be entered to achieve correct results.

Also see section 3.6.9 for a description of how a default location is selected when duplicate or multiple cities exist in the database.

3.6.26 Duplicate City Names and County Designations

In the PC*MILER database, there are several thousand instances of towns in the same state, province or estado that share the same name. For example, in the U.S. state of Pennsylvania, there are two towns named Hamlin: one in Wayne County and one in Lebanon County. Another example is the towns of Londonderry in the United Kingdom: one is in Londonderry and one is in North Yorkshire.

In certain circumstances, duplicates can be separately identified by means of their differing postal codes. However, some duplicate towns do not have postal codes assigned to them. You can identify your desired stop by the county listing in the town name. In the database, the county name follows the state abbreviation (e.g. **Hamlin, PA, Wayne**). It appears in the route window after a stop has been entered, in small letters after the city name and state abbreviation.

If you are not sure which city is the stop you want, first click the File application menu > *Application Settings* and make sure that **Provide Pick List** is checked. Then enter the city name and state/province/estado abbreviation. When you click **Add Stop**, a pick list will provide all the possible choices in the database along with county names. The order in which locations are listed in the pick list is based on such factors as population and geographic centrality. The most densely populated cities that match your entry will be at the top of the pick list. Select the correct city from the pick list and click **OK** to enter it as a stop.

If you know the county in which the duplicate city is located, you can enter that exact city in the stop entry field. Do so by entering the city and state in a normal fashion, followed by a comma and the county name. Your entry must be in one of the following formats:

| | hamlin, pa, wayne | hamlin,pa, wayne |
| | hamlin, pa,wayne | hamlin,pa,wayne |

> **TIP:** Another way to see the county name: in the PC*MILER map window, place your cursor over a town without clicking – the full name of the town, with its county, will appear in a tooltip.

In Canada, duplicate city names are found in the same provinces. PC*MILER identifies the town by assigning a county to it in the same way that the county name follows a U.S. city name. For a list of Canadian counties in the PC*MILER database, see *Appendix B*.

3.6.27 Editing the Stop List

All options related to editing the stop list are found in the Routes tab > Route group, under **Stops**. Alternatively, several editing options are available in a right mouse menu off any stop name on the list. Here are all the editing options in the Routes tab, with the right mouse menu option noted where available:

Editing Option	Button/Shortcut	Option Description
Add Stop at End		Type a location in the location entry fields and click this button to add the stop at the end of the stop list.
Insert Stop Above	**F7**	Click to insert a stop above the highlighted stop; or **right mouse click** on the highlighted stop and choose *Insert Above* from the menu.
Edit Stop		Click to edit the highlighted stop, or **right mouse click** on the highlighted stop name and choose *Edit* from the menu. When done editing, click **Add Stop** to add the edited stop back to the same position on the list.
Delete Stop	**F8**	Click to delete the highlighted stop; or **right mouse click** the stop name and choose *Remove* from the menu.
Delete All Stops	**Alt+F8**	Click to delete all stops from the currently active route window.
Frame Stop on Map		Click to frame the highlighted stop on the map; or **right mouse click** on the stop name and choose *Zoom to Stop* from the menu.
Pick Stop on Map		Click to activate this option. Then pick a stop from the map: in the map window zoom

		in to the target location, point the cursor to a town, address, intersection, or lat/long on the map, then click to add this place as a stop.
Move Stop Up	**Shift+↑**	Move the highlighted stop up on the list, or **right mouse click** on the stop name and choose *Move Up*.
Move Stop Down	**Shift+↓**	Move the highlighted stop down on the list, or **right mouse click** on the stop name and choose *Move Down*.
Reverse Stops		Click to reverse the order of stops in the currently active route window.

3.6.28 Dragging and Copying Stops

A geocoded stop can be copied or moved from one route window to another, or dragged to a different position in the same window.

To **copy** a stop to another route window, left click the stop name while holding down the **Ctrl** key and drag it onto the stop list in the target window, letting go when the stop is in the desired position on the list. The geocoded stop will be copied but also remains in its original window.

To **move** a stop either to another position on the list of stops or to a different route window, left click the stop name and drag to the desired position. If placed in another window, the stop will be deleted from the original window.
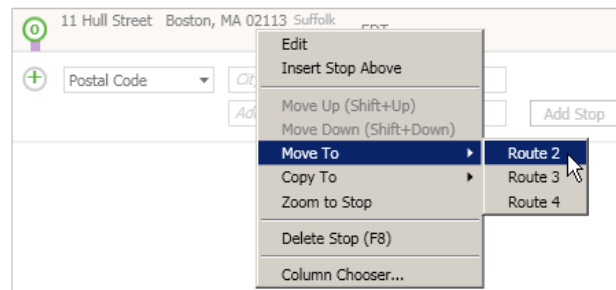
Moving a Stop to the Route 2 Window

To move or copy a stop using the right mouse menu, right click the stop name and select either **Move to >** or **Copy to >** from the menu. Select a target window from the list of all open windows in the sub-menu. The stop will be placed at the bottom of the stop list in the target window.

NOTE: Waypoints can be copied or moved just like stops. However, if a waypoint is moved to the Origin or Destination position on the stop list, it will become a stop rather than a waypoint.

3.6.29 Frame a Location On the Map

To zoom directly to a specific location on the PC*MILER map, first enter the location as a stop in the route window and make sure it is highlighted on the stop list. Then you can either 1) double-click the stop name; 2) right mouse click on the stop name and select *Zoom to Stop* from the menu; 3) select the Routes tab > Route group > *Frame* button; or 4) select *Zoom to Stop* from the right mouse menu in the map window.

NOTE: If PC*MILER|Streets data is installed and you're trying to find an address, you can place your cursor, without clicking, on any road segment on the map to see a tooltip containing the street name and address range of that segment.

TIP: Pass your cursor over the map without pressing the mouse button. Notice that its **latitude/longitude position is automatically tracked** and appears in the status bar in the lower left corner of the map window.

Zoomed Into a Stop in Indiana

3.6.30 Reversing the Order of Stops

To reverse the order of all stops on the stop list, select the Routes tab > Route group > *Reverse Stops*.

This option is especially useful when used with the route optimization feature (see section 3.7). For example, you might need to make multiple pickups and you want to start at the farthest one on the route and end up at some other location for delivery. Enter the delivery location first, then enter your pickup points. Next, optimize your route keeping the first and last stops the same. After optimizing, reverse the order of stops. This will put your farthest pickup point first on the list, and your delivery point last, with an efficient route in between.

3.7 Route Optimization

PC*MILER can optimize the order of stops in the active route window to minimize the total time (when using Practical routing), the total distance (when using Shortest routing), total toll distance (when using Toll Discouraged routing), and distance of the National Network (when using the National Network or 53-Foot Trailer routing). Optimizing a route provides the optimal order of stops, keeping the origin the same (or optionally, keeping both the origin and destination the same).

Optimization cannot be undone. The original order of stops cannot be recovered, so you may want to save the original route before optimizing (see section 3.15).

To optimize a route, select the Routes tab > Route group > *Optimize* > *Optimize Stops* from the drop-down list or press **Alt+F10** on your keyboard to bring up the Optimize Route dialog:
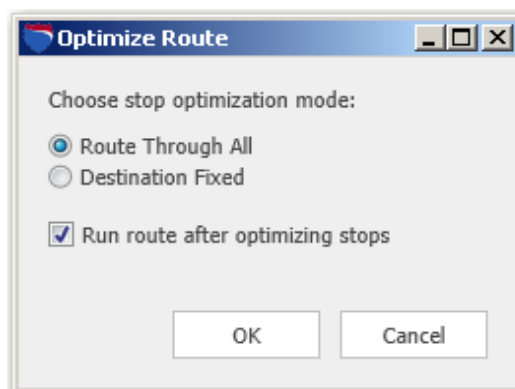
Optimize Route Dialog

This dialog gives you the following options:

- **Route Through All:** Stops will be optimized in any order, with only the origin remaining fixed.

- **Destination Fixed:** Keeps the origin and destination the same.

- **Run route after optimizing stops:** Automatically generates the route when optimization is finished.

> **NOTE:** You need at least three stops to optimize with **Route Through All** and four stops using **Destination Fixed**.

3.8 Location Radius

PC*MILER includes a Location Radius search tool for easier rate determination and trip planning. This tool enables you to find all cities and/or postal codes within a specified radius around any location. To search for POIs, including custom places, see section 3.9 below on searches from the route window.

To use the Location Radius feature, select the Routes tab > Route group > *Location Radius* then follow the steps below.
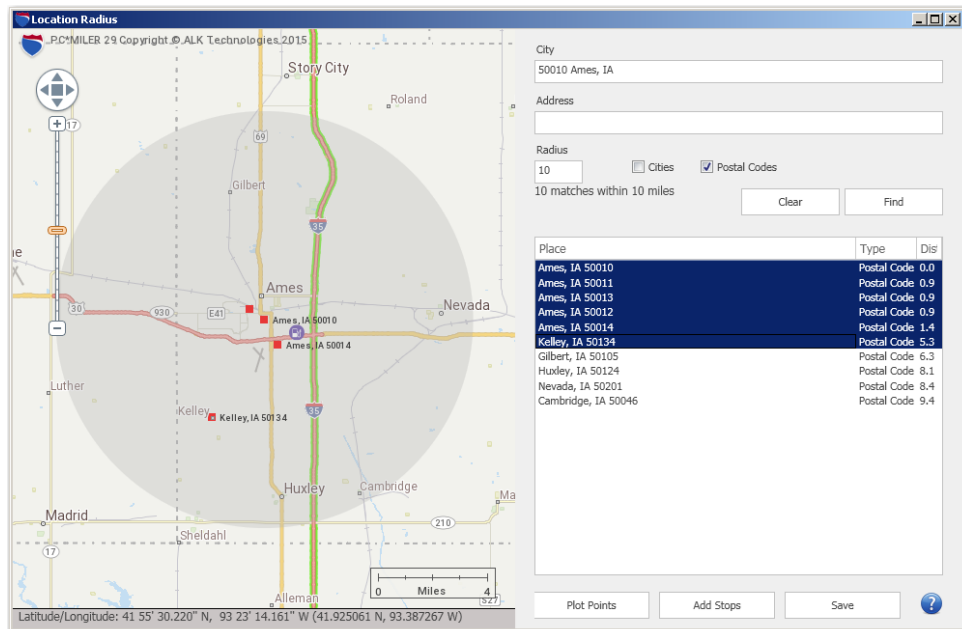
Postal Codes Within 10 Miles of Ames, IA

1. Enter a location in the **City** field. The location can be a city/state, postal code, latitude/longitude, or custom place. If PC*MILER|Streets is installed, an address can also be entered.

2. Use the check boxes to select which types of places to include in your search: **Cities**, **Postal Codes**, or both.

3. Enter a **Radius** (a number of miles or kilometers, depending on the unit of distance setting in the Route Options dialog, General tab).

4. Click **Find** to search. The list below will be populated with the search results.

You can select one, several, or all matching places to add as stops to the active trip, plot on the map, or save to a text file. Highlight the one(s) you wish to select – hold down the **Shift** or **Ctrl** key to pick multiple places. To select all places, highlight the first place on the list, then hold down the **Shift** key and highlight the last place, scrolling down if necessary.

To add the selected places as stops in the active route window, click **Add Stops**. To save them to a text file, click **Save**. To plot the selected points on the map, click **Plot Points**. The plotted points will appear as small red squares.

To copy the selected points to the Windows clipboard for pasting into another application, highlight your selection and press **Ctrl+C** on your keyboard.

To clear points from the picklist, click **Clear**. Plotted points will remain on the map until another set of points is plotted or the Location Radius window is closed.

NOTE: The maximum number of matching places that can be displayed after you execute the search is 15,000. In some cases you may need to specify a smaller radius to get a complete list of matches.

3.9 POI Search Along a Route or Within a Radius *(U.S. & Canada only)*

(PC*MILER/Streets must be licensed and installed, and the Streets routing option must be enabled to search along a route.) PC*MILER enables you to execute a search for POIs and custom places in the United States and Canada from a route window, either within a specified radius around a location or along a corridor on a route. Optionally, the search can target specific POI categories and can include a key word to look for. Categories include truck stops and services, parking and rest areas, intermodal ramps, highway exits, airports, schools and facilities, hotels/motels, and emergency/medical.

Searching Within a Radius Around a Location

To search for POIs within a radius of a location, follow these steps:

1. In a route window, select **Place of Interest** from the stop type drop-down. You can do this either before or after stops have been entered.   To insert a

POI above an existing stop, right-click that stop and choose *Insert Stop Above*, then select **Place of Interest** from the stop type drop-down.
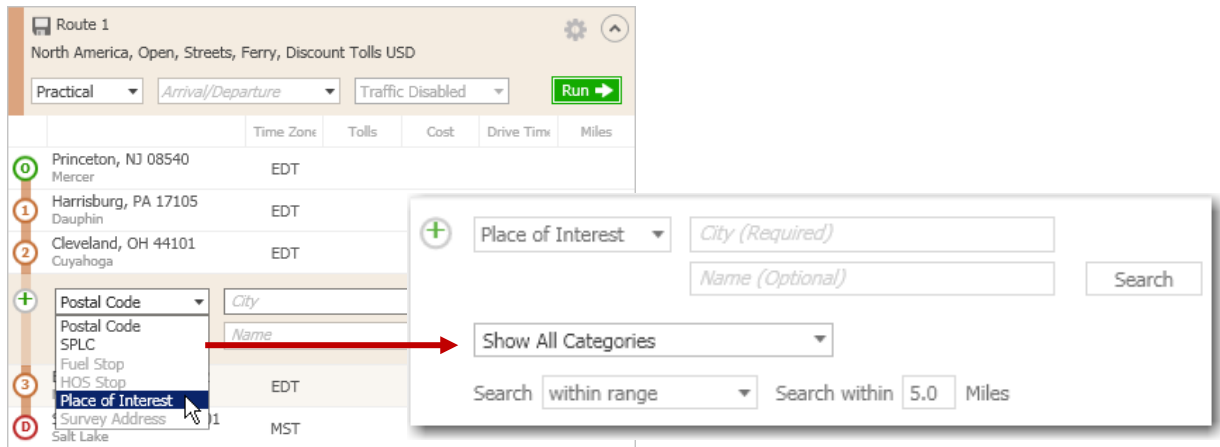
Beginning a POI Search in the Route Window

2. In the *City* field, if no stops have been entered you must specify a location around which to search. If one or more stops have been entered and you don't specify a location, PC*MILER will search around the previous stop.

3. (Optional) To narrow the search, enter a word or name to search for in the *Name* field. For example, you could enter "inn" and all POIs with a name that includes "inn" will be found.

4. In the **Search within** field, enter a number of **Miles** to specify a radius. The default here is 5.0 miles.

5. (Optional) In the categories drop-down, uncheck the POI categories that you don't want to include in the search. To clear the list of check marks, you can uncheck **Show All Categories** and then check the ones you want.
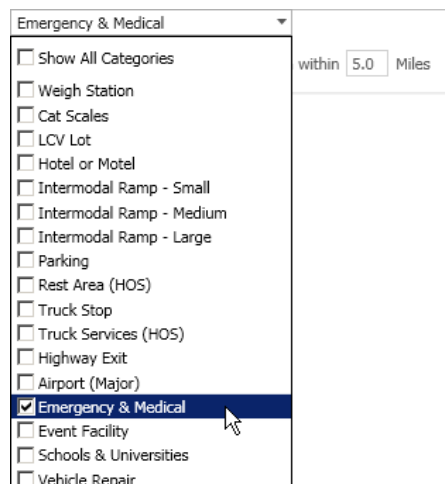
6. Click **Search**. A pick list of POIs will be created and displayed on the map.

7. To zoom to any POI on the map, just highlight it on the pick list. Click **OK** to enter the selected POI as a stop.
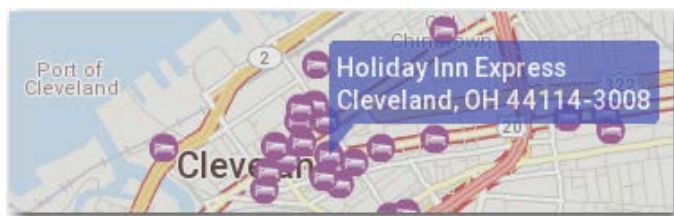
8. The POI you select will be entered as a stop. It can be edited, deleted or moved like any other stop on the trip.

POI Found and Added to the Stop List

Searching for POIs Along a Route

To search for POIs along a trip leg between two stops, the steps are similar to the above but with a few modifications. A route must be generated <u>before</u> the search.

1. First enter and run a route.

2. Right-click a stop on the route and choose *Insert Stop Above*. The stop type drop-down will be inserted above the stop.

3. Select **Place of Interest** from the stop type drop-down.
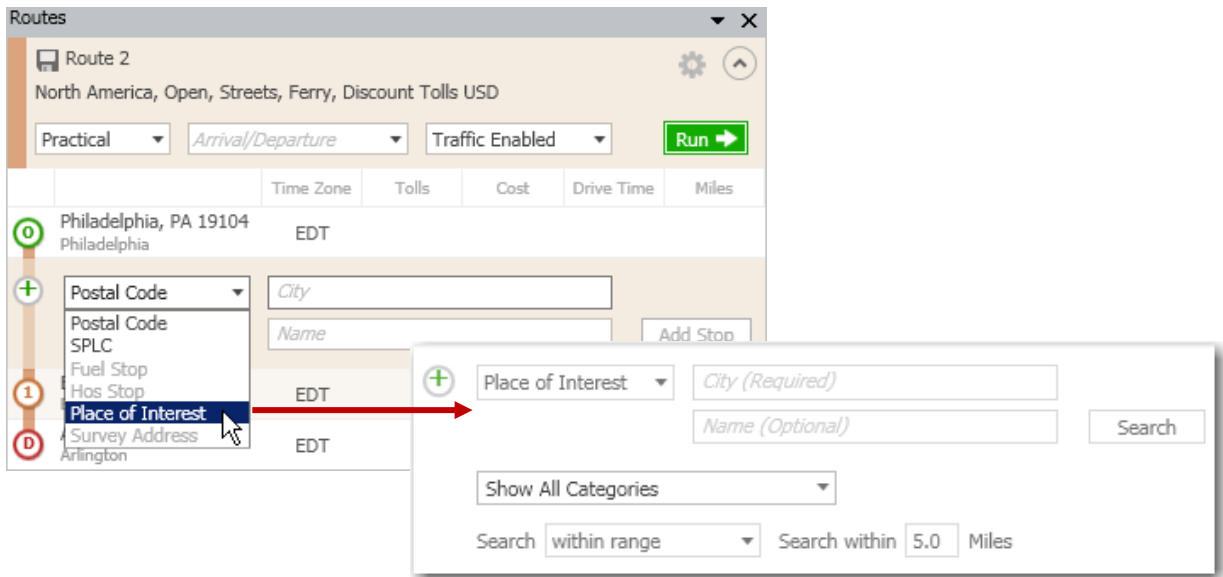
Beginning a POI Search in the Route Window

4. Select **along the route** from the **Search** drop-down. The *City*, *Name* and *Search within* fields will be disabled when you select this option.
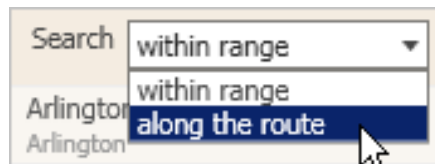
5. (Optional) In the categories drop-down, uncheck the POI categories that you don't want to include in the search. **To clear the list of check marks**, uncheck **Show All Categories** and then check the ones you want.
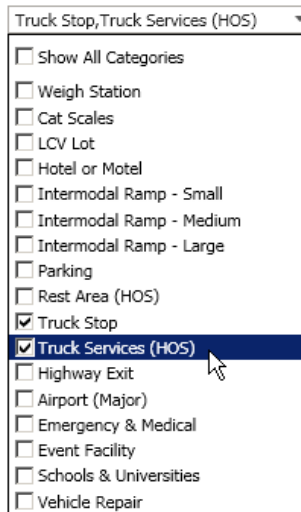
6. Click **Search** to create a pick list of POIs and to see them along the route on the map.

7. To see any POI on the map, just highlight it on the pick list. To enter a POI from the pick list as a stop, select it and click **OK** or simply double-click it (click **Cancel** to close the list without making a selection).
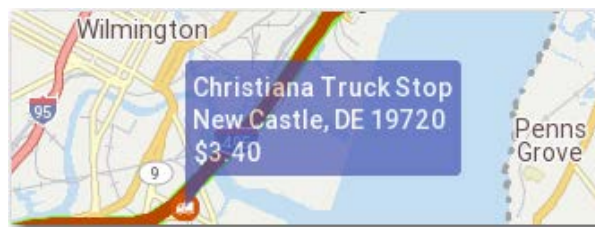
8. The POI you select as a stop can be edited, deleted or moved within the route window like any other stop on the trip.
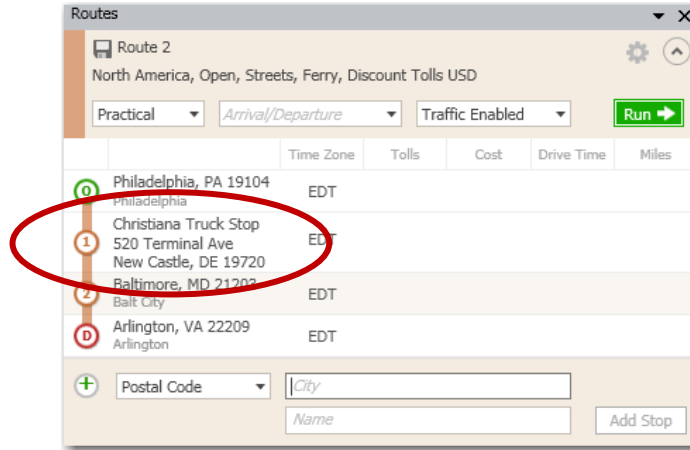
POI Found and Added to the Stop List

3.10 Searching for Fuel Stops and Fuel Prices *(U.S. & Canada only)*

(PC*MILER/Streets must be licensed and installed and the Streets routing option must be enabled. An internet connection is required to access updated fuel prices.) PC*MILER enables users to search for fuel stops along a route and real-time fuel prices where available at major providers in the U.S. and Canada. If you have an active internet connection, you can enable an automatic fuel price feed at customized intervals using the Application Settings dialog (File menu > *Application Settings*) – this setting is enabled with a 60-minute interval by default.

NOTE: Fuel prices for stops in Canada are priced in Canadian dollars per liter.

NOTE Also: A fuel price of $0.00 on the pick list means that current price data is not available.
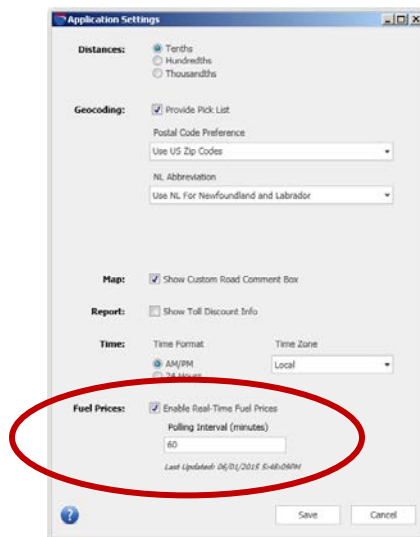
Fuel Prices Enabled in the Application Settings Dialog

To search for fuel stops and prices, a route must be generated first and you must insert a stop above one of the stops on the route. Follow the steps below:

1. Enter stops and generate a route.

2. Insert a stop above one of the stops on the route (press the **F7** key or right-click the stop and choose *Insert Stop Above*).

3. Select **Fuel Stop** from the stop type drop-down.

4. Enter a **Distance from the previous stop**. PC*MILER will search along the route from this point until the next stop.

5. (Optional) To narrow the search, in the categories drop-down uncheck any categories that you don't want to include. To clear the check marks, uncheck **Show All Fuel Stops** and then check the ones you want.

6. Click **Search** to create a pick list of fuel stops with fuel prices where available. Amenities at each stop are shown in the pick list, along with the distance from the origin of the trip segment. Fuel stops will be plotted on the map as well. To zoom to a stop, highlight it on the pick list. To apply a location on the pick list as a stop, highlight it and click **OK**.

> **NOTE:** Fuel prices won't be displayed if all the values in the results pick list are $0.00.

Results of a Fuel Stop Search

3.11 Hours of Service (HOS) Management *(U.S. only)*

NOTE: PC*MILER|Streets must be licensed and installed to use the HOS Manager. And though not required, a PC*MILER|Traffic license can significantly enhance reported travel times and the timing of applicable driver breaks and rest stops.

NOTE Also: When one or more HOS-enabled routes are open, Drag Route mode is not available for any route until the HOS route(s) are closed.

*(PC*MILER|Streets must be licensed and installed, and U.S. Streets routing must be enabled.)* Beginning in Version 29, PC*MILER's HOS Manager provides users with the option to incorporate the requirements of the U.S. Federal Hours of Service (HOS) regulations into route calculations. Users can enter the driver's available remaining hours of service and, optionally, expected stop times at each stop along a route.

When the route is generated, PC*MILER then inserts rest stops along the route at time intervals that meet the HOS requirements. Users also have the option to enter stop times without enabling HOS breaks (this functionality replaces the Route Options dialog > Stops tab in previous versions).

The rest stop locations that PC*MILER selects can be customized as needed. When you choose to edit a rest stop, PC*MILER will search for alternate rest stops/fuel stops, backtracking along the route within a time window of about one hour. This logic avoids a possible violation of HOS regulations, due to traffic or other unforeseen conditions, if the driver were to continue moving forward on the route past the time when a rest stop is due.
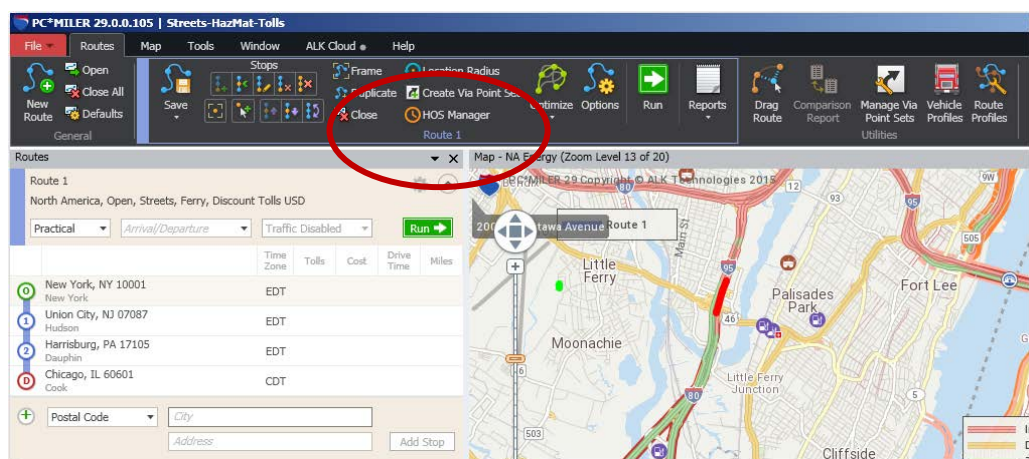
HOS Manager Access From the Routes Tab

The table below summarizes the U.S. government's Hours of Service regulations that have been incorporated into PC*MILER's HOS functionality:

Hours of Service Rules (HOS) for Property Carrying Drivers in the U.S. – PC*MILER 29	
11-Hour Driving Limit	May drive a maximum of 11 hours after 10 consecutive hours off-duty.
14-Hour Limit	May not drive beyond the 14th consecutive hour after coming on duty, following 10 consecutive hours off-duty. Off-duty time does not extend the 14-hour period.
Rest Breaks	May drive only if 8 hours or less have passed since end of driver's last off-duty or sleeper berth period of at least 30 minutes. Does not apply to drivers using either of the short-haul exceptions in 395.1(e). [49 CFR 397.5 mandatory "in attendance" time may be included in break if no other duties performed]

A summary of Federal HOS regulations can be found on the following web page: https://cms.fmcsa.dot.gov/regulations/hours-service/summary-hours-service-regulations.

To generate a route that includes HOS stops, follow the steps below:

1. First enter and run a route with all the route options set the way you want them. (If a route is run using the HOS Manager, and then the route options are changed, you will need to enter all your HOS options again and re-run the route.)

2. Select the Routes tab > Route group > *HOS Manager.*

HOS Manager

3. In the HOS Manager, check **Insert HOS Driver Breaks**.

4. Enter the driver's <u>driving hours remaining</u> until he/she needs to take a 30-minute rest break and 10-hour end-of-work-day break in the boxes under **Available Driving Hours at Origin**.

5. Enter the driver's <u>duty hours remaining</u> until he/she needs to take a 10-hour end-of-work-day break under **Available Duty Hours at Origin**.

6. (Optional)   To enter stop information, check **Include Stop Duration** and then enter one or more of the settings to the right: a number of hours next to the stop (**Stop Duration**) in hh.hh format (e.g. "1.25" would equal 1 hour and 15 minutes); whether the duration of the stop is on duty time (**Status**); and the stop **Type** (**Pickup**, **Dropoff**, **RestStop** or **FuelStop**). Stop durations affect the time estimates used in route calculations. (This option can be used with or without enabling HOS breaks. Stop durations are reported and counted towards the total trip time in the Detailed and Driver's reports. In the route

window, if an arrival or departure time was entered, the ETA/ETD column accounts for stop times but the estimated drive time column does not.)

7. Click **Save** to save your entries and begin HOS route calculations.

8. In the route window after processing is finished, you'll see the rest stops that PC*MILER inserted into the trip. All stops will be numbered in order, with the rest stops numbered in a different color than the stops you entered manually.
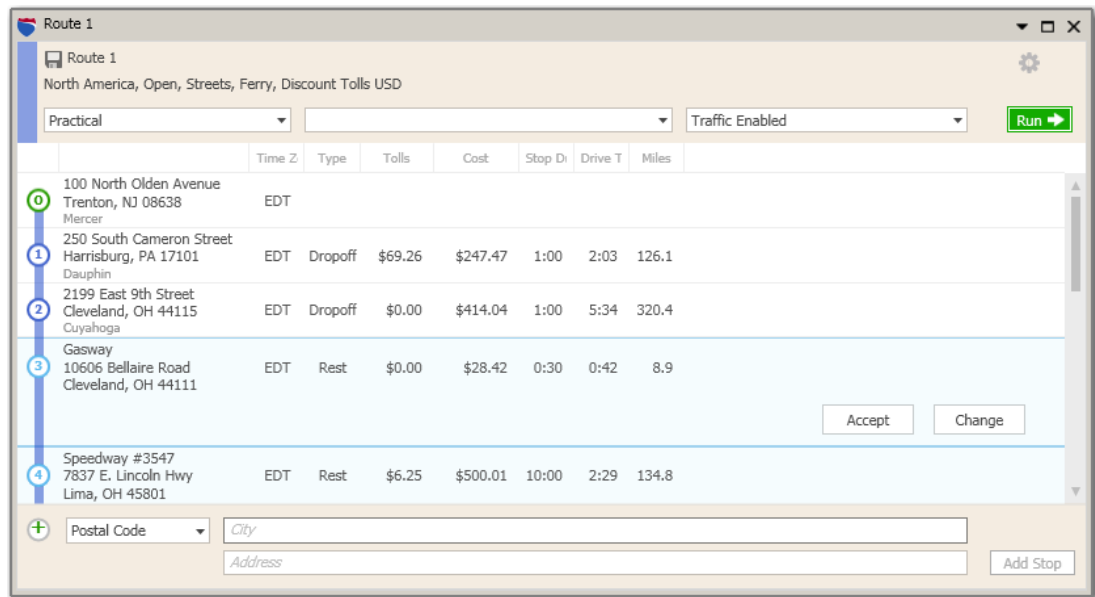
Route with HOS Rest Stops Inserted

9. Now you have the option to either **Accept** each inserted stop, or **Change** it to an alternate rest stop. If you click "Accept" next to all the inserted stops, the route does not need to be rerun.

10. Click **Change** next to any stop to initiate a search for an alternate rest stop. You'll be given the option to narrow down the search. In the drop-down on the left, choose **Fuel Stop**, **HOS Stop**, or **Places of Interest** as the type of stop. The options in the drop-down on the right will reflect the stop type and enable you to narrow the search further.
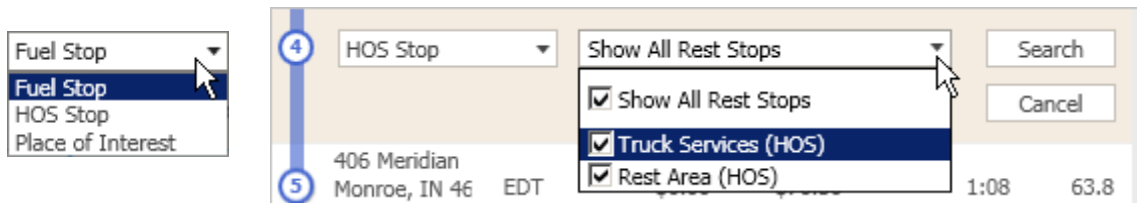
11. Click **Search** to generate a pick list of alternate stops along this route segment. The pick list will include columns that show amenities where available, the time and distance from the origin of the trip, and a fuel price where price data is available. (Fuel prices require an internet connection. If a fuel price is listed as $0.00, it is because the current price data is not available.)

NOTE: **To delete the HOS stops:** If you open the HOS Manager and uncheck **Insert HOS Driver Breaks**, all HOS stops will be deleted from the trip without affecting the original stops.

Pick List of Alternate Rest Stops

12. In addition to the pick list, all the rest stops found along the route segment will be visible on the PC*MILER map. (Note that when rest stops are displayed after a search, all other POIs will be temporarily hidden.) To zoom to any rest stop on the map, just highlight it on the pick list.
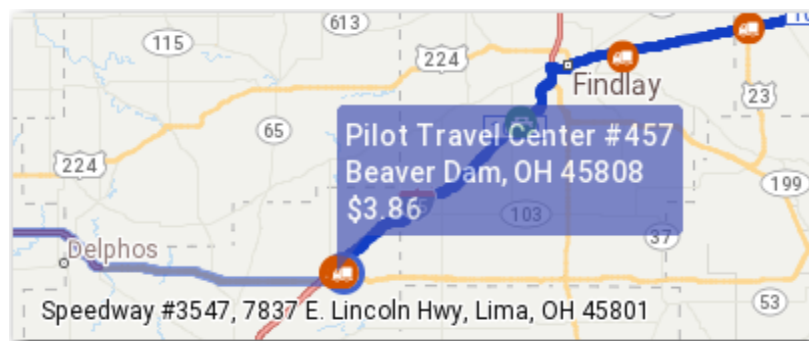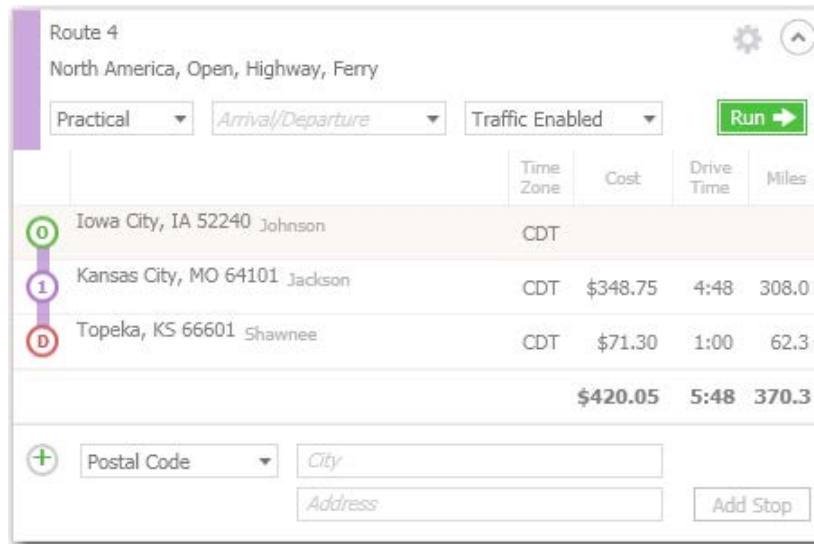
Zoomed View of an Alternate Stop

13. To choose an alternate from the list, select it and click **OK**. If you click **Cancel**, you will be returned to the route window to perform another search. An alternate rest stop must be selected, or you must open the HOS Manager and uncheck **Insert HOS Driver Breaks**.

14. After editing an HOS stop, the new stop will be accepted and the trip will re-run automatically.

When using the HOS Manager, note the following:

- PC*MILER may select and insert rest stops that occur along a route up to one hour <u>before</u> the HOS requirement would go into effect, to avoid violations due to traffic or another unforeseen event. For example, if a driver is scheduled for a stop at 3:00, PC*MILER would in most cases favor a stop at 2:10 versus one estimated to occur at 2:50.

- Remember, the hours that PC*MILER returns for a trip are estimates that may not reflect a variety of factors that can influence driving times.

- When changing an HOS rest stop, all POIs other than rest stops will be temporarily disabled – i.e. they won't be visible on the map in the areas surrounding the route.

- If all stops on a route are outside the United States, the HOS Manager will be disabled.

- If you delete an HOS stop, PC*MILER will rerun the route and insert the original stop recommendations. To delete all HOS stops, uncheck **Insert HOS Driver Breaks** in the HOS Manager.

- When a route is saved that includes rest stops inserted by the HOS Manager, the rest stops will be saved but any custom settings in the Manager under **Available Driving Hours** and **Available Duty Hours** won't be saved along with the route. In other words, when the saved route is open, the HOS stops will be there but if you open the HOS Manager you'll see the default available hours (8, 11 and 14 hours).

- An arrival or departure time can be added to the trip after HOS rest stops have been inserted, the route will rerun automatically.

3.12 Running a Route

Mileage, Time and Cost Calculations for a Generated Route

For a route to be generated, there must be a valid origin and at least one valid destination entered in the active route window. To generate a route, you can:

- click **Run** in the active route window; or
- press the **F10** key; or
- select the Routes tab > Route group > *Run*.

Active routing options are listed at the top of the route window, under the route name. The routing options that are active by default are listed below. See Chapter 9 to change routing options.

- **For North America:** Practical, Borders Open, Highway Only*, Use Ferry Distances, Tolls Discount - US$** *(** Defaults to Streets if PC*MILER|Streets, PC*MILER|Energy and/or RouteSync is installed)* *(** With PC*MILER|Tolls installed)*

- **For All Other Regions:** *(PC*MILER|Worldwide and DTOD only)* Practical, Borders Open, Highway Only*, Use Ferry Distances
  * *Except if PC*MILER|Streets is installed for the active region*

When processing is finished, the route will be drawn and framed on the PC*MILER map, and mileage, cost, and time estimates by trip leg will appear to the right of each stop on the list. If an arrival or departure time was entered, the ETA at each stop will also be calculated. From left to right, the columns are:

- **Time Zone** – Displays the time zone for each stop. See section 5.1 on how time zones are reported and setting this option.

- **Tolls** – *(Only if PC*MILER/Tolls is installed)* At each stop, shows toll costs for the trip leg from the previous stop, with the total toll cost for the trip at the bottom.

- **Cost** – At each stop, shows the estimated cost of the trip leg from the previous stop, including tolls if PC*MILER|Tolls is installed. Trip costs are calculated by multiplying PC*MILER's default cost per mile by the number of miles. The cost per mile settings can be customized using the Route Options or Default Route Options dialog – see sections 9.4 and 9.7.

- **Time** – At each stop, shows the estimated driving time for the trip leg from the previous stop. Cumulative driving time is shown at the bottom.

- **Miles** – At each stop, shows the mileage for the trip leg from the previous stop. Cumulative miles for the trip are shown at the bottom.

- **ETA/ETD** – If an arrival or departure time was entered, this column shows the departure time at the origin (this time is an estimate if an arrival time was entered) and estimated arrival time(s) at each stop.

TIP on Resizing a Route Window: If the columns you want to see aren't visible after running a route, try adjusting the column order or eliminating columns using the Column Chooser (see section 3.12.2); or float the window. A floating window can easily be resized like any other window – click the gear button and select *Float*. Select *Dock* to return the window to its default position.
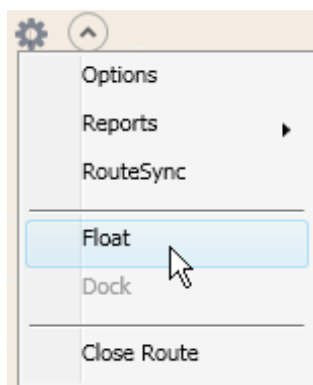
3.12.1 Warnings in Route Windows

When PC*MILER generates any type of warning regarding a routing issue, the circle that represents the stop related to the warning will be solid red. Place the cursor over the red circle without clicking to see a tool tip that briefly describes the reason for the warning. Generate a Detailed or Driver's Report to see more details.

Warning Indicator with Tooltip in the Route Window

3.12.2 Editing Columns in a Route Window

The columns in any route window can be hidden and the column order can be changed in any route window using the Column Chooser dialog. To access this feature, right click any stop on the stop list in a route window, then select *Column Chooser...* in the right mouse menu that pops up.
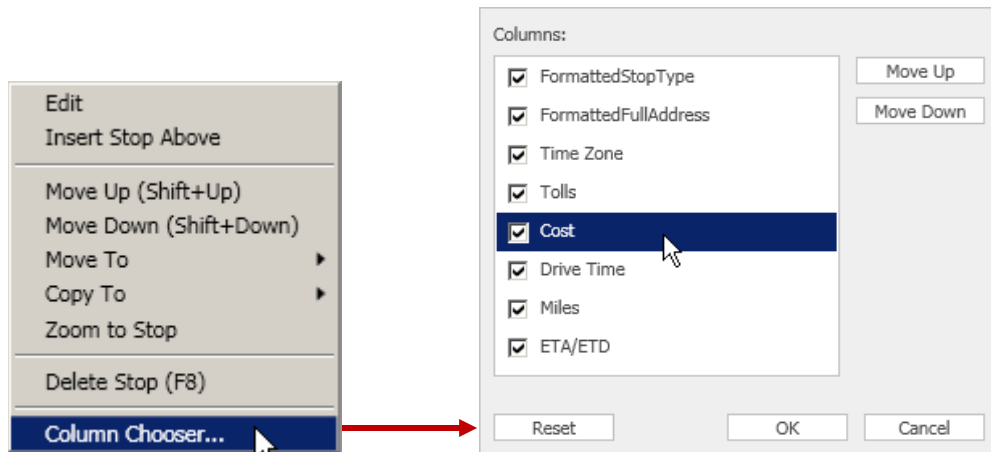
Right Mouse Menu Off a Stop

Column Chooser Dialog

In the Column Chooser dialog, all possible columns are listed. Columns that are displayed are checked. (Note that the **ETA/ETD** column only displays if an arrival or departure time has been entered for a route.) Uncheck any column to hide it. To change the column order, click on a column name to highlight it and then click **Move Up** or **Move Down**. As the column name moves up the list, it will be moved to the left in the route window, and vice versa. Click the **Reset** button to reset to the default column order.

NOTE: The Column Chooser is also available in reports – right click any column header to access it.

3.12.3 Route Framing on the Map

- To automatically frame each route after it is run, select the Map tab > View group > *Frame* > *Auto Frame Routes* (this option is turned on by default).

- To frame one route, select the Routes tab > Route group > *Frame* or the Map tab > View group > *Frame One Route* > and select a route.

- To frame all generated routes, select the Map tab > View group > *Frame* > *All Routes*.

3.12.4 Copy and Paste the Mileage Report

After a route is generated, the results in the route window can be copied and pasted into a text editor such as Microsoft Word. With your cursor inside the route window, press **Ctrl + C**. Then open the text editor and press **Ctrl + V**. The example below is in a WordPad file. The widths of the data columns have been adjusted by changing the position of the tabs in those paragraphs.

Route 1 : 08540 Princeton, NJ to 90021 Los Angeles, CA : No Stops

Miles: 2,753.4 Time: 42:37 Cost: $3,686.59

Truck Config: Weight: 80,000lbs Height: 13ft 6in Length: 48ft 0in Width: 96in Axles: 5

North America, Practical, Borders Open, Highway Only, Ferry Distance, Discount Tolls USD

		Time Zone	Tolls	Cost	Time	Miles	ETA/ETD
O	Princeton, NJ 08540	EDT					Dep 5/10 7:00 AM (EDT)
D	Los Angeles, CA 90021	PDT	$151.43	$3,686.59	42:37	2,753.4	Arr 5/13 1:00 PM (PDT)
T			$151.43	$3,686.59	42:37	2,753.4	

Mileage, Time and Cost Data Pasted Into WordPad

3.13 Working with Multiple Routes and Windows

For comparison purposes, you may want to route through different locations while keeping the routes you already generated open. Up to eight route windows can be kept open simultaneously.

When there are hidden or partially hidden windows open, a scroll bar will appear on the right side of the Routes pane. The active route window will have a highlighted title bar at the top.

Each open route will be drawn in a different color in the map window. Routes are identified in the Route Legend (if this legend is not visible, select the Map tab > Customize group > *Legends* > *Route*) and their corresponding route color appears on the left side of each individual route window.

Reports can be run for each generated route, with each report appearing in a separate window. See section 3.3 on screen layout options.

To bring a window forward, click the Window tab and select the window you want to see from the Windows group.

3.14 Duplicating a Route for Easy Comparison

To duplicate a route either before or after it is run, select the Routes tab > Route group > *Duplicate*. A new route window will open that contains all the stops from the original route. This option makes it easy to compare different route types (for example, Shortest and Practical) for the same route.

3.15 Saving and Retrieving Trips

Routes generated in PC*MILER can be saved for later retrieval, either before or after they are generated. This is particularly useful for trips you run frequently. To save a route either before or after processing, select the Routes tab > Route group > *Save* > *Save Route As* to bring up the Save Route dialog.
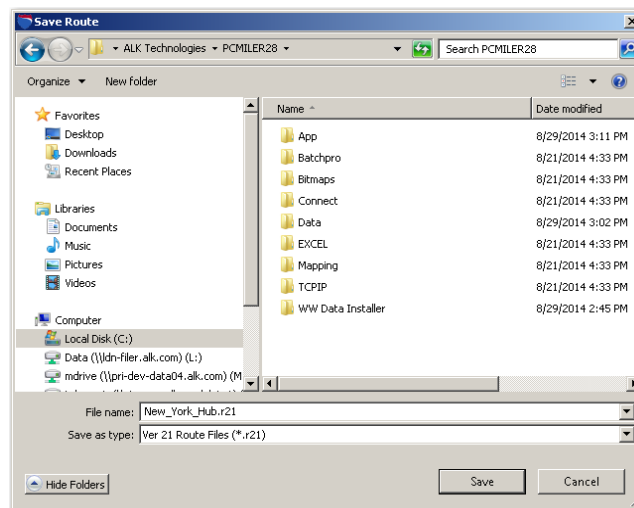
Save Route Dialog

NOTE: When route files from previous PC*MILER versions are opened as trips, they are automatically converted to Version 29 format.

This dialog is a standard Windows® dialog. Choose the folder where you want your route file to be placed, assign a file name and type to the file, then click **Save**. There is no limit to the number of characters a file name can contain.

Select the route type "**.r21**" from the **Save as Type** drop-down for trips that will be retrieved at a later time from within PC*MILER.   When you save a file with the .r21 extension, route options will be saved together with the route, but **saved route files do not retain mileage, cost and time information**.

To save sets of points in text format for batch processing using PC*MILER|BatchPro or for use with PC*MILER|FuelTax, select the route type "**.in**". Files saved with the extension ".in" do not include any route options.

To load a previously saved .r21 route file, select the Routes tab > General group > *Open*. This will bring up a standard Windows dialog similar to the one you used to save your route. Select your saved file from the **File Name** drop-down and click **Open**.

As mentioned above, all settings used to create the file will be restored when you open it, but you will need to rerun the route to see reports and a map display of the route.

3.16 Custom Places

3.16.1 Adding Custom Place Names to the Database

PC*MILER gives you the capability to assign your own custom names to an unlimited number of locations in the PC*MILER database, and optionally to assign them to custom categories. Follow the steps below.

1. Select the Tools tab > Custom Place Manager group > *Add Places*; or to pick a location from the PC*MILER map select the Tools tab > Custom Place Manager group > *Pick Places on Map* then click on the desired location.

2. (Optional) In the Add a Place dialog, click **New** to create a new category of custom places.

3. (Optional) Enter a unique **Name** for this category.

4. (Optional) From the drop-down **Pin** list, choose an icon to represent this category on the map. (If none is chosen, the generic gray pushpin will be used.)
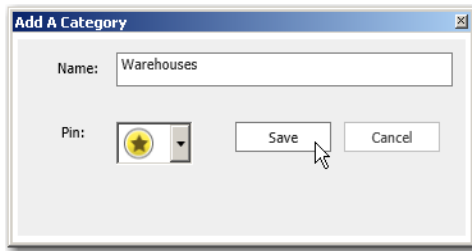
5. (Optional) Click **Save** to save the new category.

6. (Optional) In the Add a Place dialog, make a selection in the **Category** drop-down. If a category is not selected, the custom place you are creating will be in the generic "Custom" category.

7. Enter your custom name in the **Name** field (the same name cannot be used more than once).

8. Enter the PC*MILER location (real name) in the **Location** and (optionally) **Address** fields. The location can be in any format that is valid for stop entry.

9. Click **Save** to save the new custom place name to the PC*MILER database.
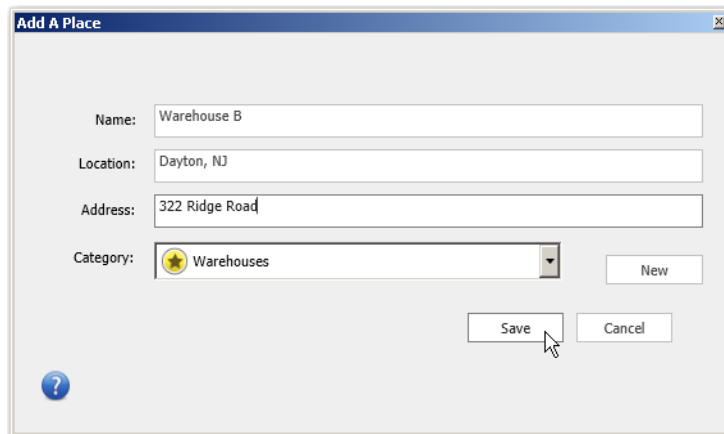
Saving a Custom Place

Once a custom place is saved, you can enter it as a stop on a route: in the route window, type the custom name into the *City* field.

NOTE: Custom place names are sensitive to spacing – for example, the name "01586,GM" is not the same as "01586, GM".

To view or edit custom places, press **F2** or select the Tools tab > Custom Place Manager group > *Manage* (see below).

To view or edit custom categories, select the Tools tab > Custom Place Manager group > *Categories.*
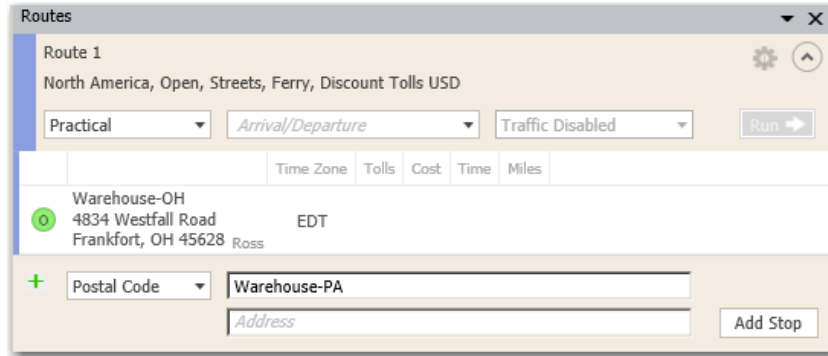
Entering a Custom Place as a Stop

3.16.2 Using the Custom Place Manager

To view, edit or delete custom places, select the Tools tab > Custom Place Manager group > *Manage.*   All custom places in the database are listed in the Custom Place Manager. To sort any column, click the column header.
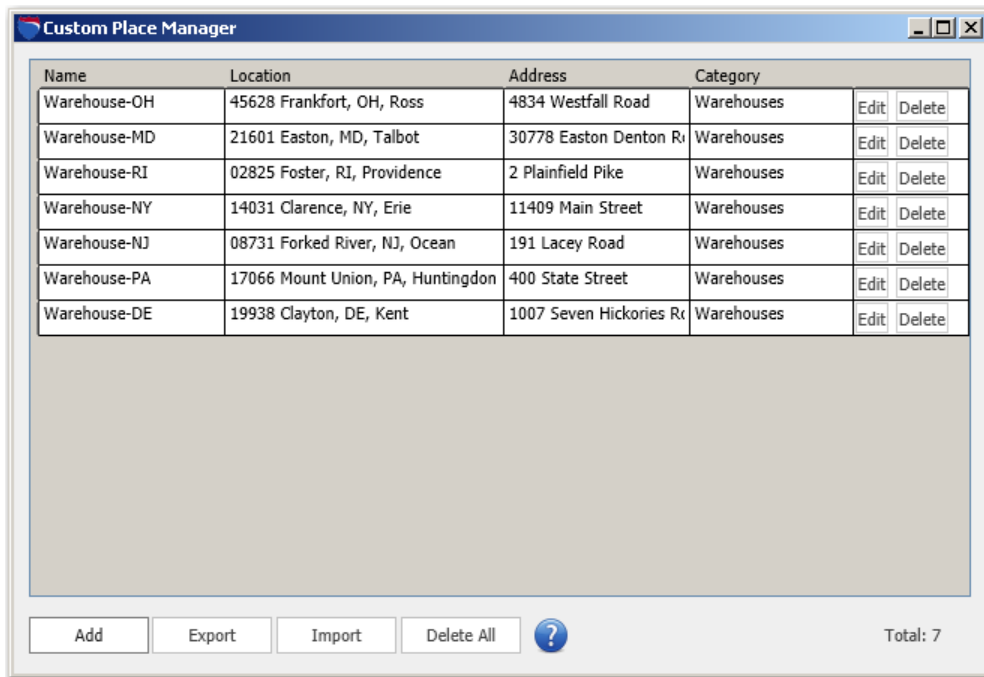
Custom Place Manager
(Address data shown above can be entered only if PC*MILER|Streets data is installed)

To edit a custom place, click the **Edit** button for that place in the last column. Make the desired changes and click **Save** to save your edits.
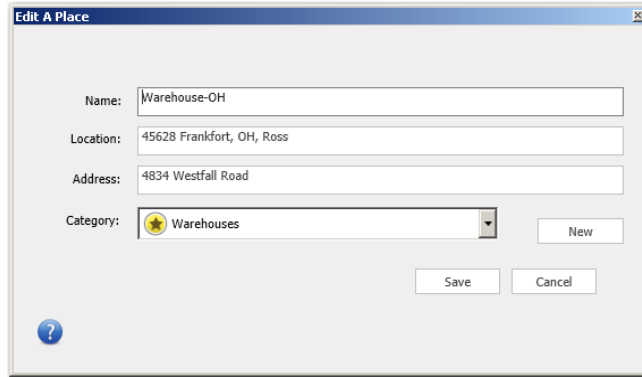
Edit a Place Dialog

To delete a place, click the **Delete** button for that place. To delete all places on the list, click **Delete All**. A prompt will ask you to confirm if you mean to delete all places. To **Export** the list of places, see section 3.16.4 below. Click the "X" in the upper right corner to close the Custom Place Manager and save your edits.

IMPORTANT: It is strongly suggested that you regularly back up important PC*MILER files such as custom places. See section 11.7 for simple instructions.

3.16.3 Creating Custom Latitude/Longitude Points

You can assign a name of your choosing to a latitude/longitude point in the PC*MILER database by using the Add a Place dialog (section 3.16.1 above). For example, you could type "**Home Office**" in the **Name** field, and "**40n,100w**" in the **Location** field. After you add this name to the list, you'll be able to enter "**Home Office**" as a stop on your route.

Note that PC*MILER tracks the latitude and longitude position of your cursor as it passes over the PC*MILER map (watch the status bar in the lower left corner of the program window).

3.16.4 Exporting Custom Places

PC*MILER gives you the ability to export all custom places listed in the Custom Place Manager into a **.csv** ("Comma Separated Value") file or a tab-delimited text file. This feature can be used to import custom places from an older version of PC*MILER, see section 3.16.7.

To export custom places from the Custom Place Manager, follow these steps:

1. Select the Tools tab > Custom Place Manager group > *Manage.*

2. In the Custom Place Manager, click **Export**.

3. In the Export window, select a file type in the **Save as type** drop-down. For a comma-delimited value file choose "**.csv**", or choose "**.txt**" to save as a comma-delimited text file.

4. Assign a file name.

5. Select a target location where the export file will be saved.

6. Click **Save** to create the export file.

	A	B	C	D	E	F
1	Name	Zip	City	State	Address	Category
2	Warehouse-OH	45628	Frankfort	OH	4834 Westfall Road	Custom
3	Warehouse-MD	21601	Easton	MD	30778 Easton Denton Road	Custom
4	Warehouse-NY	14031	Clarence	NY	11409 Main Street	Custom
5	Warehouse-NJ	8731	Forked River	NJ	191 Lacey Road	Custom
6	Warehouse-PA	17066	Mount Union	PA	400 State Street	Custom
7	Warehouse-DE	19938	Clayton	DE	1007 Seven Hickories Road	Custom
8						

Custom Places Exported to Excel (Column Formatting Adjusted)

3.16.5 Importing Custom Places

NOTE: See section 3.6.17 for the correct way to format latitude/longitude points. See section 3.6.1 for all other stop entry formats that are accepted by the Import Custom Place Wizard.

TIP: Did you know that the Import Custom Place Wizard can be used as a batch geocoding tool to clean up your data? If you have a list of customer locations that include street addresses and/or other information, you can import those locations to confirm that they match locations in the PC*MILER map database. (PC*MILER|Streets is required to process address data.) The original input file does not need to include custom place names but does have to be correctly formatted – see Step 1 below.

NOTE Also: Importing a file containing more than 4,000 places may take a very long time and is not recommended. Consider dividing a large input file into smaller files for importing.

Using the Import Custom Place Wizard, you can import sets of custom places which were created in an environment independent of PC*MILER. During the import process, PC*MILER provides the option to 1) enter the whole set of imported places as stops on a route, or 2) save the imported places as custom places in the map database for future use.

The Import Custom Place Wizard first tries to match each record in the input file to a place or address range in the database, converting the records to a format that PC*MILER can use. The input file must be a text file with columns delimited by a tab or other character such as a comma. Here are several lines from a sample text file of custom places that are suitable for importing:

```
Place·Name    →    PostCode    →    State/Country →  City          →         Region¶
Place·A    →    35217    →    AL    →    Birmingham    →    NA¶
Place·B    →    35034    →    AL    →    Brent    →    NA¶
Place·C    →    23661    →    VA    →    Hampton    →    NA¶
Place·D    →    29401    →    SC    →    Charleston    →    NA¶
Place·E    →    75001    →    FR    →    Paris    →    EU¶
```

Sample Text File, Tab Delimited

The import process includes five basic steps, covered on the following pages:

Step 1. **Setting Up a Correctly Formatted Input File**

Step 2. **Open the Input File**

Step 3. **Select and Preview Input**

Step 4. **Confirm Matches**

Step 5: **Add Places to a Route Window or the Custom Place Manager**

STEP 1: Set Up a Correctly Formatted Input File

The first step is to ensure that your input file is correctly organized and formatted. Making the effort to properly organize the input file can make a big difference in how efficiently the locations in the file are processed.

The input file must be a text file with columns delimited by a tab or other character such as a comma. If the original file is a text file, try opening it in Excel, formatting as necessary, and then saving it again as a tab-delimited .txt file

To successfully add places to the database, at minimum the input file must include a location column.

The required location for each place must be either a latitude/longitude, postal code, or city and state/province/country abbreviation. (PC*MILER|Worldwide or DTOD data must be installed for countries outside North America.) Other location information can be included in additional columns. As you will see in Step 3, you can tell PC*MILER to ignore columns in the input file that contain data that can't be imported.

It is recommended to organize the information in each column of the input file into like groups, separating the data that PC*MILER will accept from the data that won't be accepted. For example, from left to right the file might include:

- **Place Name** – A custom place name (required). If the file does not include place names and you are importing places for the purpose of data matching, you can insert a column with any appropriate custom name.

- **Address Line 1** – A location address including a street number and street name. PO Box numbers are not accepted by PC*MILER and should be removed. (PC*MILER|Streets is required for address data to be accepted.)

- **Address Line 2** – Secondary address information such as suites, floors, apartments, units, building names, etc. Not accepted by PC*MILER.

- **City** – The city name.

- **State/Province** – A two-letter state/province/estado abbreviation, the name should not be spelled out (e.g. "ON" is correct, "Ontario" won't be accepted).

- **ZIP/Postal Code** –
  - U.S. addresses can be a ZIP or ZIP+4 Code (use a dash with ZIP+4, e.g. 12345-1155). PC*MILER will only read in the first five digits and will ignore the last four.
  - Canadian addresses should include spaces, do not use dashes (e.g. G1A 1B1, the format is ANA<space>NAN where "A" stands for "letter" and "N" stands for "number").

- **Country** – Not usually needed, but should be in its own column.

- **Region** – *(PC*MILER|Worldwide or DTOD data must be installed)* A region is only needed if locations are outside North America. Region names should be spelled out as they appear in the Route Options dialog.

Example File:

Place Name	Address Line 1	Address Line 2	City	State/Province	ZIP/Postal Code	Country
Warehouse1	4 Moore Street	First Floor	Princeton	NJ	08540	US

STEP 2: Open the Input File

1. To begin, open the Import Custom Place Wizard: select the Tools tab > Custom Place Manager group > *Import* .
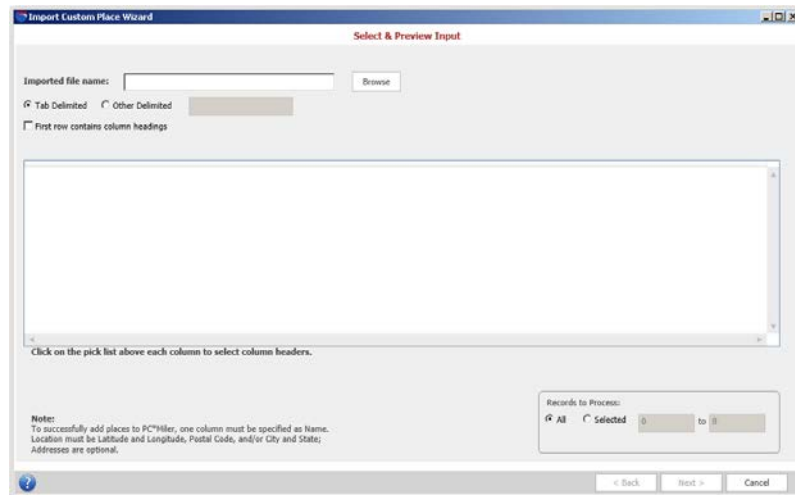
Import Custom Place Wizard – Initial View

2. In the Wizard, select **Tab Delimited** if the input file is tab-delimited text. Otherwise, select **Other Delimited** and enter a delimiter in the box to the right. This setting tells the Wizard where a new column should begin in the input file. Usually the delimiter is either a tab or a comma.

3. Click **Browse** and navigate to the drive and directory where your data file is located. Be sure to select the correct file type in the drop-down, then select the file to be imported and click **Open**.
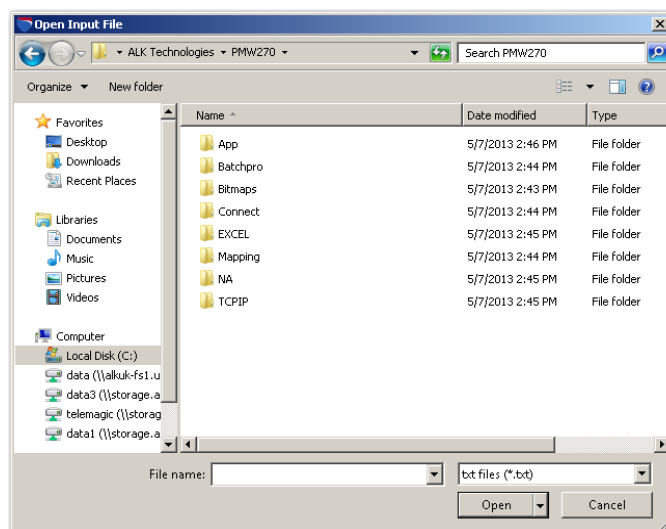
Open Input File Dialog

STEP 3: Select and Preview Input

Now you'll see the data from the input file, organized in columns. Initially, all column headers are labeled **Skip**, meaning that PC*MILER cannot interpret what type of data is in each column. Use the drop-down menu at the top of each column to assign a new column header; or if the first row of the input file included appropriate headers, check **First row contains column headers**.
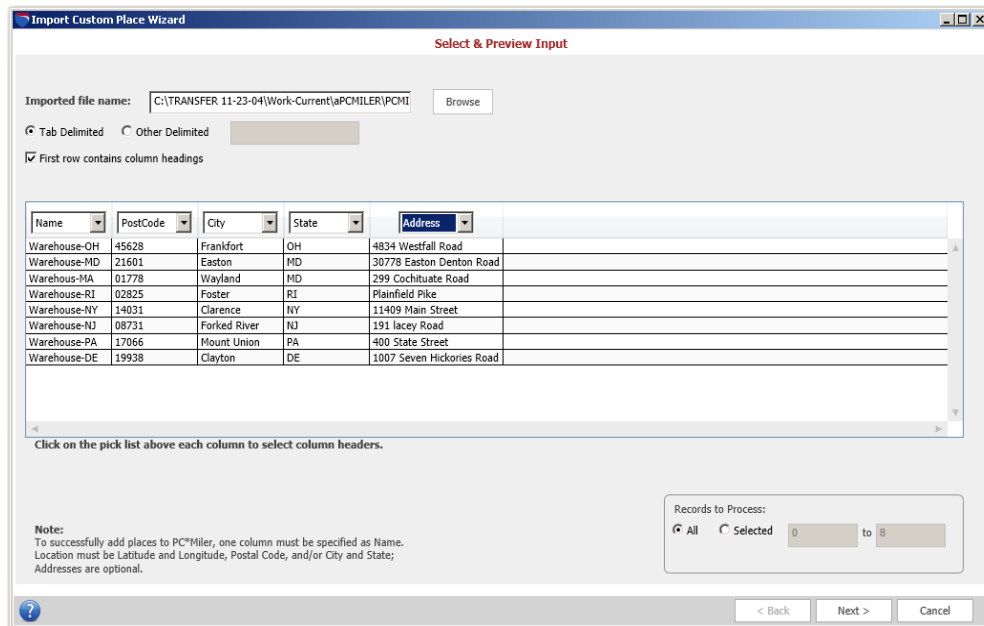
Import Custom Place Wizard – Select and Preview Input
(Address data shown above can be imported only if PC*MILER|Streets data is installed)

To successfully import places, there must be at least one location column. The location must be a **LatLong** (latitude/longitude), **PostCode** (postal code), and/or **City** and **State** (state/province/country abbreviation) with an optional **Address**. Other available headers are: **Region** (used only with PC*MILER|Worldwide or DTOD data), **Description** and **Category**.

TIP: The "**Category**" header can be used to assign a map icon of your choosing to a set of custom places. Simply create a custom category (Tools tab > *Categories*) and make sure the category name in your input file exactly matches the custom category name.

Each of the headers can be applied to only one column, with the exception of **Skip**. Label a column **Skip** if the data in it should not be read (e.g. memos or descriptions) or if it is blank.

To adjust column widths in the table for better visibility, place your cursor between two column headers. When the cursor changes to an arrow, hold down the left mouse button, drag the margin to the desired width, then let go.

The options under **Records to Process** determine how many and which rows of data in the table will become custom places. Select **All** to have all the data processed, or **Selected** to process only some of the records. If you choose **Selected**, enter the range of records to be processed.

With the columns and input selection set, click **Next** to continue.

TIP: If you want to import a file that has different types of locations (postal code, city and state, and/or latlong) on different rows, and/or different combinations of types (such as postal code and state), first use the **=citytolatlong()** function in PC*MILER|Spreadsheets to convert those types consistently to LatLong, then import that file specifying a Name column and a LatLong column as the only location. See the PC*MILER|Spreadsheets *User's Guide* for instructions on how to use the =citytolatlong() function.

ADDITIONAL NOTES: The more information you include, the more certain it is that a unique match will be found. Import Custom Places will import a file that has city and state combined into a single column (label this column "City"), or zip code, city and state combined into a single column (label this column "Zipcode"). A county name may optionally be included at the end of either one. A space should separate the ZIP code from the city, a comma should separate the city from the state, and a comma should separate the state from the county. For example, any of the following are acceptable:

City
Princeton
Princeton, NJ
Princeton, NJ, Mercer

ZipCode
08540
08540, NJ
08540 Princeton, NJ
08540 Princeton, NJ, Mercer

STEP 4: Confirm Matches

When all records have finished processing, the Confirm Matches screen will display the processed records along with results data and output options.

Import Custom Place Wizard – Confirm Matches

Results:

- **Total Processed:** The total number of records processed.

- **Total Matches:** The total number of records that were successfully matched with a location in the PC*MILER database.

- **Seconds/Records:** The average time spent on processing each record.

- **Time Elapsed:** The time elapsed since the start of the record matching process.

Confidence Level:

There are four possible levels of confidence in the accuracy of the data matching for each record:

1 Exact – An exact match was made. For street addresses, trust is 95% or greater AND if address is outside the range listed in the database, the top match is within 100 address units of input address*; OR for any other match level if there are multiple matches they are all within .1 air miles of each other. * For example, "100 Main Street" was input and the best match in the database is "150-250 Main Street".

2 Fair – Inexact match but unique result (i.e. there is only one match). For street addresses, trust is 85% or greater AND if address is outside the range listed in the database, the top match is within 500 address units of input address*; OR for any other match level if there are multiple matches they are all within .5 air miles of each other.

* For example, "100 Main Street" was input and the best match in the database is "450-550 Main Street".

3 Uncertain – Inexact match and there is more than one match in the database. For street addresses, trust is 50% or greater.

4 Failed – Match not found. Trust is below 50% for street addresses.

# of Records:

This column displays the total number of records which fall into each of the above categories.

% of Records:

This column shows the percentage of all records that fall into each category.

In the **Accept** column, accepted records will be checked to indicate that they were successfully matched with a location in the PC*MILER database with either an Exact or Fair confidence level. Locations that were not accepted will have an error message in the **Error(s)** column that briefly describes the reason for the error. Check marks can be manually entered or deleted in the Accept column.

The **Conf** (Confidence) column shows the confidence level of each record's match (described above). The **Match** column displays the record in the database that was matched to the input location.

STEP 5: Add Places to a Route Window or the Custom Place Manager

Once the validity of all the Accepted matches have been confirmed, you are ready to add the imported places to a route window or the Custom Place Manager. You only need to make a few option selections, described below.

Add Selected Places:

Choose whether output should be added to the **Custom Place Manager** (i.e. the PC*MILER database) or a **Route Entry Window**. Check **Accepted** to only add the accepted names, or **All Matched** to include all matches except those in the "Failed" category.

Options:

Here, if you selected to save the imported places to the Custom Place Manager, choose whether to automatically overwrite any duplicate custom place names or PC*MILER place names that already exist in the database. If **Do not override existing place** or **Prompt for each duplicate** is selected, a

prompt will pop up when a duplicate is detected and processing won't proceed until there is an interaction. If you are adding the output to a route window, under **Add Places to Route Window** choose whether to open a new route window or add them to the currently active window.

When ready, click **Add Selected Places** to send the output to the target route window and/or the Custom Place Manager. Click **Export Results** in the upper right corner to create a text file containing the confirmed matches.

3.16.6 Editing Custom Place Records

To edit or verify a record, highlight it in the Results window and click **Edit Selected Custom Place** in the upper right corner of the Confirm Matches screen. In the Edit Match window, you'll see all matches that were found in the PC*MILER database for that location listed and displayed on a map.
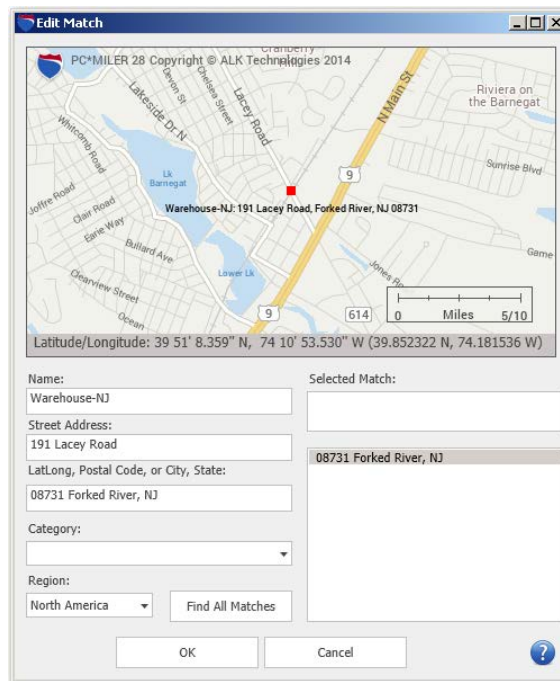
Edit Match Window

The map in this window is set to "Box Zoom" mode. To zoom to a match on the map, hold and drag a box around it with the left mouse button.

Under the map, the fields on the left show the name and data included in the highlighted record. These fields can be edited. On the right, all matches are listed and the **Selected Match** field shows the complete record in the PC*MILER database for the match that is highlighted on the list.

To search for a wide range of possible matches, you can enter the first few characters of a faulty postal code or city/state name and then click **Find All Matches**. For example, type "085" in the **LatLong, Postal Code, or City, State** field to get a list of all postal codes that begin with "085". (Note that if there is an address in the **Street Address** field, you should delete it before performing the search for best results.)

Click **OK** to exit the window and save your edits, or **Cancel** to cancel the edits.

3.16.7 Converting Custom Place Files from a Previous Version

Custom places that were saved in the previous version of PC*MILER (28) can be transferred and converted to PC*MILER Version 29. First you will need to export the custom places into a text (.txt) file using the Custom Place Manager in PC*MILER 28. The .txt file you created can then be imported into Version 29 – see section 3.16.5 above.

IMPORTANT NOTE: Do NOT try to simply copy your old custom places from the previous version to the new version. PC*MILER won't recognize the older custom places unless you go through the process described above.

Least Cost Routing

Costing has always been an important use of PC*MILER. Among ALK customers there has been a growing interest in using PC*MILER to help with the trade-off of toll costs, costs per mile, and costs per hour in determining a "least cost" route.

In response to the needs of our customers, ALK began to research the relevant costing issues using several cost factors (typical miles per gallon, cost per gallon, fuel cost per mile, other cost per mile, and labor cost per hour for an 18-wheeler) and found that:

- a slower (less "practical") route is the least-cost route 58% of the time, regardless of diesel price, provided the truck can still make its delivery window and its pickup window for its next load;

- if the least-cost route is chosen, there is the potential to save 0.6/% - 0.9% in costs, on average[1];

- when diesel prices are high, the least-cost route is more likely to be a "shorter" route compared to when diesel prices are low; and

- the absolute amount of savings from choosing a least-cost route is insensitive to diesel price.

Of the 90 origin/destination pairs used in ALK's study[2], the O/D with the largest difference in cost, regardless of diesel price, was Chicago, IL to Washington, DC. At a fuel price of $2.71/gallon, the savings if the "least cost" route was chosen would be $79, or 7.8% [3]:

Chicago, IL to Washington, DC							
Route	Miles	Hours	Cost				
			Total	Tolls	Fuel	Time	Maint
Prac	697.1	11.60	$1,010	$147	$315	$465	$84
Prac|Toll	776.8	12.90	$961	$0	$351	$517	$93
Short	689.9	12.10	$994	$115	$312	$485	$83
Short|Toll	700.1	13.23	$931	$0	$316	$531	$84
Least-cost difference	3.0	1.63	-$79	-$147	$1	$66	$0

Would a customer in the above scenario actually save $79 in cost if they chose the "least cost" route? That would depend on a lot of factors that are external to the route:

- where the driver is in their hours of service cycle

- the delivery time window for the truck and driver's current load

- the pickup time window for the truck and driver's next load

- alternative opportunities to match a different truck and driver to the next load (for a dispatcher of company drivers) or to choose a different next load (for an owner-operator)

On the basis of all the above findings, ALK has developed a new Least Cost routing feature that considers user-specified values for miles per gallon, cost per gallon, fuel cost per mile, other costs per mile, labor cost per hour, and stop costs – and includes a parameter for a greenhouse gas emission estimate.

Least Cost routing generates a series of alternative routes with distance, time and cost estimates, and lets the dispatcher or driver (or an external system, such as a truck dispatch optimization system) choose an optimal route, considering factors such as those cited above that are external to the route. If PC*MILER|Tolls is installed, toll costs are factored in as well.

Reference Notes:

1 - These results are for 48' equipment. It is expected that the potential savings for 53' equipment will be lower, due to fewer opportunities for legal alternative routes.

2 - The O/D pairs used for the study connect the centers of the 10 largest metro areas in the U.S.

3 - Sources of "average" data used in the study were default values for drivers paid by the hour, along with values from a recent American Transportation Research Institute (ATRI) study (*An Analysis of the Operational Costs of Trucking*), the U.S. Energy Administration, and typical miles per gallon for an 18-wheeler.

4.1 Using Least Cost Routing

To calculate Least Cost routing, follow the steps below:

1. In a new route window, enter an origin and at least one destination, then run the route – click **Run** or press **F10**. If there are any time/cost settings that need to be specified, they can be entered in the Route Options dialog – see section 9.4 – either before or after running the trip.

2. Select the Routes tab > Route group > *Optimize > Least Cost Routing*. A separate window will open that displays the possible routes on a map and the calculated totals for each route below the map. The most efficient calculated totals for distance, costs, hours and tolls will be highlighted in yellow below the map.

Least Cost Options Window

To hide a route on the map, uncheck it in the **Visible** column.

To use one of the generated routes, highlight it and click **Save Selected Options**. The calculated totals will appear in the route window, replacing the original route.

Click **Print** to print the Least Cost route calculations in a Comparison report.

Route	Type	Origin	Destination	Miles	Cost	Hours	Tolls	Fuel	Other	Labor	Est. GHG
1	Practical	Macon, GA 31201	New York, NY 10001	948.9	1429.83	15:19	72.00	623.14	180.30	554.39	3511.11
2	Shortest	Macon, GA 31201	New York, NY 10001	870.7	1490.46	16:31	155.45	571.79	165.44	597.77	3221.76
3	Fastest	Macon, GA 31201	New York, NY 10001	927.2	1482.70	14:59	155.45	608.85	176.16	542.23	3430.56
4	Practical, Toll Avoid	Macon, GA 31201	New York, NY 10001	952.5	1422.03	15:21	60.00	625.49	180.98	555.56	3524.32
5	Shortest, Toll Avoid	Macon, GA 31201	New York, NY 10001	870.8	1474.30	17:43	96.00	571.82	165.45	641.03	3221.95
6	Fastest, Toll Avoid	Macon, GA 31201	New York, NY 10001	949.2	1414.50	15:13	60.00	623.31	180.35	550.84	3512.03

Least Cost Comparison Report

NOTE: Internally, PC*MILER calculates six route types for Least Cost routing, but if the total cost is the same for two or more of these routes, not all routes will be displayed. Route types that PC*MILER calculates for every route are: Practical, Practical - Toll Discouraged, Shortest, Shortest - Toll Discouraged, Fastest, and Fastest - Toll Discouraged.

In recent years, ALK Technologies has become aware that a number of our customers are interested in considering time of day, day of the week, and time zones when calculating and reporting routes, distances, travel times, and toll costs. Up to and including Version 29, PC*MILER default routes, distances, travel times and toll costs are calculated based on:

- average road speeds by state/province, urban/rural, and class of road;

- height, length, width, and weight restrictions that apply during the majority of the commonly traveled seasons of the year, days of the week, and times of day;

- seasonal roads being open during shipping and receiving seasons, but not to through traffic;

- and peak-period toll costs for the most recently updated quarter of the release year.

These fundamental routing criteria work well for the many purposes of our users, and will always be foundational to ALK's industry-leading PC*MILER products.

The time-based feature enhancements described in this chapter were added in PC*MILER Version 25 and now offer more precise travel time estimates to those users who are interested. PC*MILER capabilities related to time-based routing allow users to:

- specify a departure or arrival date and time for more realistic transit times;

- calculate truck-specific toll costs based on the time of day *(PC*MILER/Tolls must be installed)*;

- and calculate more accurate transit times based on industry-leading historical traffic data.

Time-based routing can be run with or without the use of traffic data to increase the precision of travel time calculations. When time-based routing is used, ETA/ETD information appears in the route window, Detailed Route Report, and Driver's Report.

5.1 Route Generation With ETA/ETD
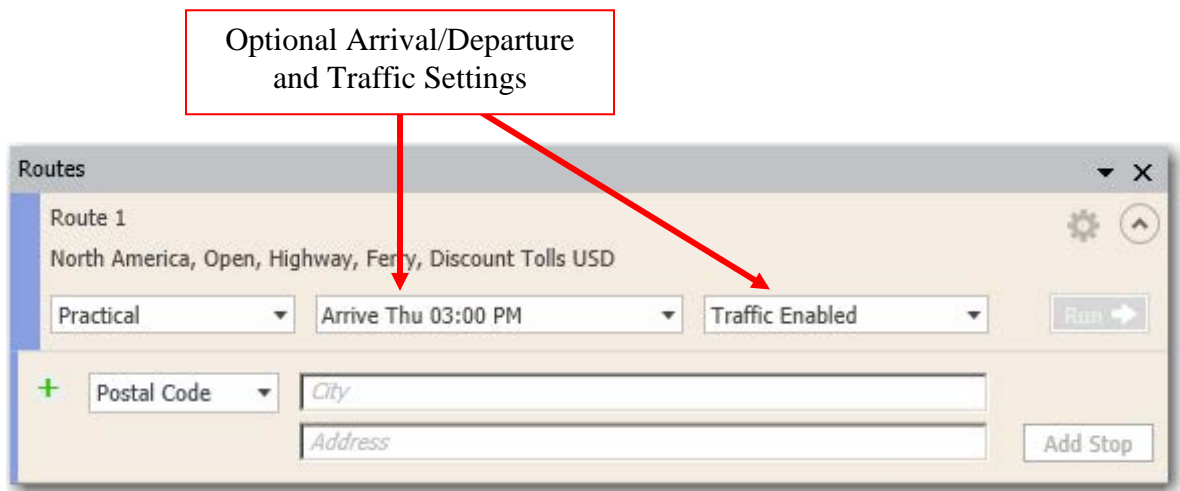
Time-Based Routing Options in the Route window

Optional time and date settings in the route window can be used to generate time-based routing that determines estimated times of arrival (**ETA**) and departure (**ETD**) based on a user-specified departure or arrival day and time. An ETA is calculated for every stop and toll plaza on the route *(PC*MILER/Tolls must be installed to access toll information)*. Follow the steps below to generate time-based routing.

1. Select the red File application menu > *Application Settings.*

2. In the Application Settings dialog, choose the desired option in the **Time Zone** drop-down (note that this setting affects how dates/times are reported, not how they are calculated):
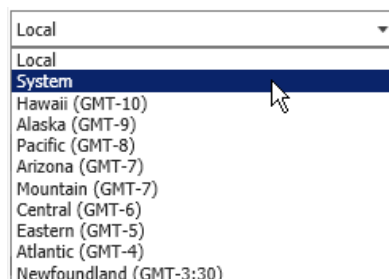
- **Local:** Reported ETA/ETD will conform to the time zone where each stop or toll plaza is located (applies in all world regions).

- **System:** ETA/ETD at stops and toll plazas will be reported based on the time zone setting on the host computer.

- **Specific:** Select a time zone by region (options will reflect the world region selected in the Route Options dialog). ETA/ETD at all stops and toll plazas will be reported using this time zone *(available only for NA and Europe).*

3. In the route window, click the middle drop-down to open time options and specify an arrival/departure time and date or day of the week:

*   **Depart by/Arrive by:**

    Select **Depart by** (to set the departure day/time at the trip's origin) or **Arrive By** (to set the arrival time at the trip's last stop). If this setting is changed after a route is calculated, the ETD and ETA's will automatically recalculate.

*   **Specific Date** or **Day of the Week:**

    Select either **Specific Date** or **Day of the Week**. To enter a **date**, either type it in the text box or click the calendar and select a date. To specify a **day of the week**, click the drop-down list.
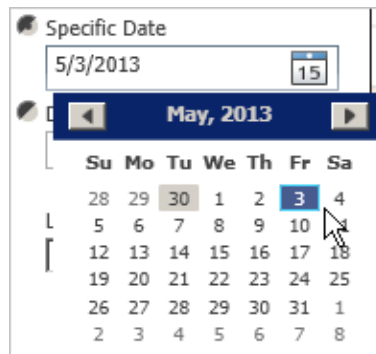
Picking a Specific Date
from the Calendar
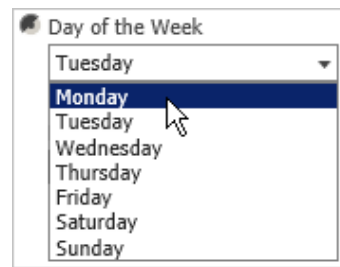
Selecting a Day of the Week

*   **Local Time:**
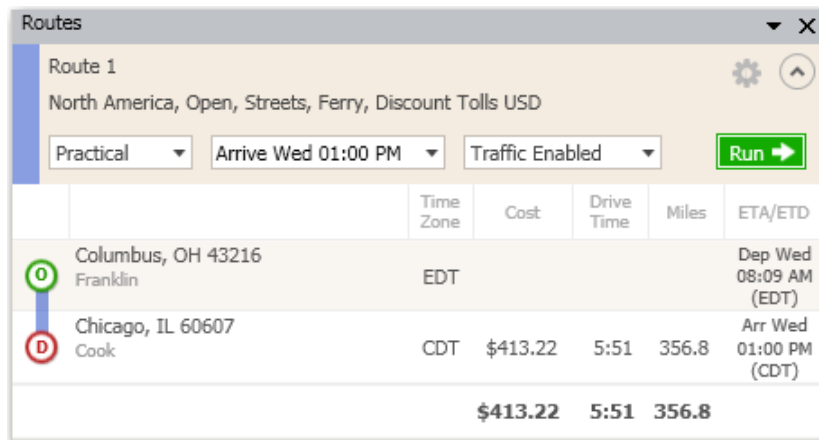
    A time of day must also be entered. Type the targeted local time at the arrival/departure location.

To change the time format from **AM/PM** to **24 Hours** ("military time"), select the File application menu > *Application Settings* and choose the desired option:
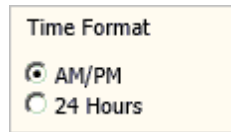
4. Click **OK** to close the time options dialog.

5. Now add at least two locations (an origin and destination) to the stop list and click **Run** to generate the route. Estimated arrival and departure times at all stops on a route will be shown in the mileage report in the route window after the route has been generated. If a target Arrival time was entered, the necessary ETD from the origin to meet that target is calculated.

   ETA/ETD calculations do not include break times or stop times. To add stop times or Hours of Service rest stops to a route, see section 3.11.

Generated Route With a Target ETA

5.2 Using Traffic Data for More Precise Time Estimates
(U.S. and Canada only)

> **NOTE:** A subscription to PC*MILER|Traffic must be purchased to access traffic data in PC*MILER, and you must have an Internet connection to use these features.

Time-based routing can be generated with or without using traffic data. Conversely, traffic data may be used whether or not an arrival or departure day/time has been entered. Using traffic data will increase the precision of time estimates.

If you choose not to use traffic data, travel times and ETA's will be calculated in the same manner as in all previous versions of PC*MILER, based on average road speeds (either PC*MILER default or user-specified) by class of road in each state/province. Road speeds can be customized in the Route Options or Default Route Options dialog.

To calculate a route's ETA/ETD using traffic data, use the drop-down menu in the route window to change **Traffic Disabled** to **Traffic Enabled**. This option will remain active until it is changed by the user again (to set the default for all route windows, see section 5.2.1 below).
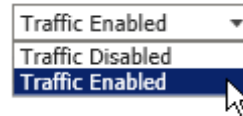
If Traffic is enabled and a departure or arrival time and date are not entered, INRIX default travel times that reflect free-flow conditions – think middle of the night – are used. (This is the "Typical" option mentioned below.)

Traffic data is collected by road segment. With the Use Traffic Data option selected and a departure or arrival time and date entered, travel times and ETA's will be calculated based on **historical**, **typical** and/or **real-time** traffic data, depending on the arrive/depart and day/time settings.

"Historical" data reflects how average traffic patterns affect road speeds on the road segments used by the generated route. (An "average" pattern is created using a historical time slice: 7 days in a week, with each day divided into 15-minute time slices.) "Typical" data uses road speeds that would occur if there were no traffic on those road segments. "Real-time" data is just that: current traffic patterns that are fed into the system in real-time.

NOTE: The three types of traffic data mentioned above can be displayed in the map window – see Chapter 6.

If **Depart by** is selected and the day/time is within 15 minutes of the current time, real-time traffic data will be used for the first 15 miles and Historical data will be used for the remainder of the route. (This is because after 15 miles of driving, conditions will have changed and they are more likely to resemble historical conditions than current conditions.) When **Arrive by** is selected, Historical data is always used.

5.2.1 Use Traffic Data By Default

To use traffic data by default in every new route window, select the Routes tab > General group > *Defaults* > **Road Speeds** tab and make sure that **Use Traffic Data** is checked. When this option is enabled, custom road speeds cannot be entered in the Route Options dialog and, if already entered, are not available.
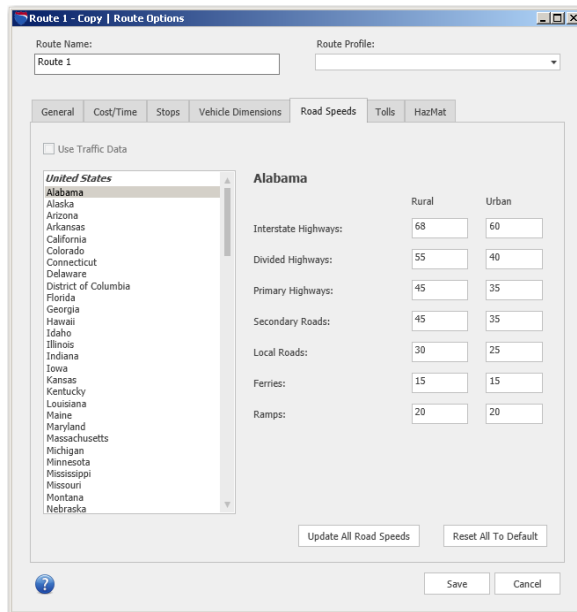
Default Route Options Dialog, Road Speeds Tab

5.3 Time-Based Routing in Reports

Estimated arrival and departure times at all stops on a route are shown in the mileage report in the route window after the route has been generated. These times appear in the **ETA/ETD** column to the far right. This column is inactive when an arrival or departure day/time has not been entered.

ETA/ETD information also appears in the far right column of the **Detailed Route Report** if a day/time was entered for the route (the report may need to be scrolled to the right – see section 8.2 for a detailed description of this report). This report column will show the estimated times of arrival at every stop and toll plaza on the route. If a target arrival time was entered, the estimated departure time from the origin will be shown. If a departure time was entered, that time will be shown at the origin.

In the **Driver's Report** (see section 8.4), if a route was run using real-time traffic data, a **Delay** column will appear just to the right of the **Time** column. The "delay" time identifies delays caused by the current traffic conditions on the first 15 miles of the trip. (Note that real-time traffic data is used for the first 15 miles

of a generated route if "Use Traffic Data" is turned on, unless a time is entered and Day of Week is selected rather than a date – in that case, historical traffic data is used for the whole route.)

5.4 "Special Restrictions" in Routing and Reports

Beginning in Version 28, time-based routing now integrates road restrictions that are active only during specific times. These new restrictions are enabled when you open the *Arrival/Departure* window in a route window and select an arrival or departure time. This action will cause PC*MILER to route around roads that have time-based restrictions.

These special restrictions may include roads that are closed in one or more directions; have a temporary closure in one or more directions (construction/natural disaster); have a restriction on a particular truck configuration (weight, hazardous material) in one or both directions; have a special speed limit in effect; or have a particular lane closed or allowed.

For example, the I-82 highway from Aspen, CO to Buena Vista, CO is closed in winter; so if an arrival or departure time during the winter season is entered, PC*MILER will route around I-82. (Note that the roads the alternate route takes may vary depending on whether the Highway Only option is turned on in the Route Options dialog. Using local streets in routing generally provides a route that is closer to the original one – in this case the spring, summer and fall route.)

Selecting "Override Restrictions" in the Route Options dialog will override these time-based restrictions, along with all other restrictions, but warning messages will appear in the Detailed and Driver's reports where a restriction exists.

The information provided in warnings will be formatted as follows:

Days of the Week: SMTWTFS. Any days during which the restrictions don't apply appear as a dash, e.g. S-T-TFS.

Hours: XX:XX AM – XX:XX PM, or XX:XX – XX:XX (Military Time – The format can be changed in the Application Settings dialog.)

Months: Includes the three-letter abbreviation of all valid months.

Days: Date range in every month from X-Y, e.g. 7-10.

Weeks: Week range in every month from X-Y, e.g. 1-2.

5.5 Time-Based Toll Cost Reporting

(Installation of PC*MILER/Tolls required) Prior to Version 25, PC*MILER calculated toll costs based exclusively on peak hour rates while factoring in vehicle dimension settings that affect those rates. Beginning in Version 25, when an arrival or departure time is entered in the route window, truck-specific toll costs can be calculated even more precisely because time-of-day variations are factored into toll rates when and where they occur, including peak and non-peak tolls.

See Chapter 7, *Getting Toll Costs,* for more on generating routes with toll costs.

NOTE: Toll costs are always calculated in the local time as the planned route crosses the toll booth. By default, the date/time of the toll collection is also reported in that local time. To change this setting, select the File application menu > *Application Settings* and use the **Time Zone** option to choose either *System* (your computer's time) or a specific time zone. The date/time of the toll collection will then be reported in the time zone you specified. Note that time zones displayed for each stop in the route windows will also be affected by this setting change.

Traffic Display

PC*MILER gives users the option to purchase access to traffic data for roads throughout the U.S. and Canada that can be used for more precise time-based routing, as described in Chapter 5. This data can also be used to display historical, typical or real-time traffic patterns in the PC*MILER map window. (Note that an internet connection is needed for real-time data and for subsequent updates to the historical and typical traffic data.) For general instructions on using the map window, see Chapter 10.
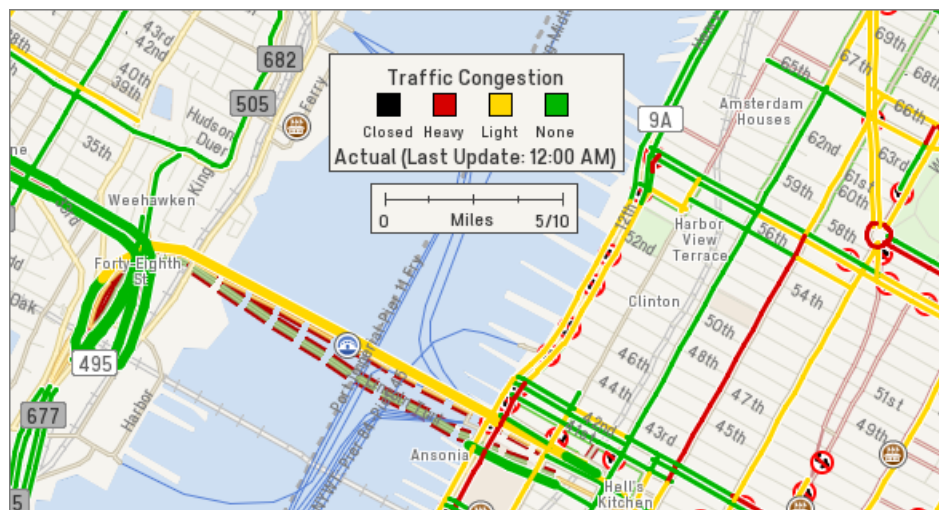
Traffic Display Showing Level of Congestion – Lincoln Tunnel, New York, NY

PC*MILER's new traffic display feature lets users instantly visualize traffic data on the map in any location throughout the continental United States to help with route planning, analysis, and diagnostics.

NOTE: An internet connection is required for the display of real-time traffic patterns. If you are not connected to the Internet and request traffic data to be displayed, you won't see any traffic flows on the map, and the **Traffic** legend will show the default text: "Actual: Last Update: 12:00 AM".

NOTE Also: The traffic display options described in this chapter do not affect how traffic data is used in time-based routing.

6.1 Traffic Display Options

To access the traffic display and set options for it, select *Traffic* in the right mouse menu off the map window. The Traffic Display window can be left open and moved around anywhere on the screen as you work in PC*MILER.
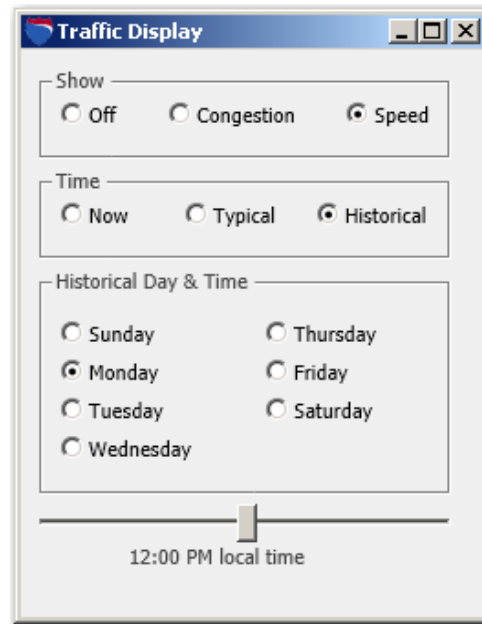
Traffic Display Window

When traffic display is turned on and your computer is connected to the internet, you will see traffic data displayed on the map at zoom level 5 and higher within the area you are zoomed into. (The current zoom level is shown in the title bar of the map window.)

To turn on the display, select either **Congestion** or **Speed** at the top of the Traffic Display window. When you change an option in this window, the map will immediately redraw to reflect the new data.

Options in the Traffic Display window are the following:

- **Show:**
  Select **Congestion** to show the amount of congestion (relative to Typical – see the *Time* options description below), or **Speed** to show absolute traffic speeds. Select **Off** if you don't wish to see traffic displayed on the map.

- **Time:**
  Select **Now** to see real-time data displayed (internet connection required).

Select **Historical** to see past traffic patterns. The Historical option displays average traffic based on patterns created using a historical time slice: 7 days in a week, with each day divided into 15-minute time slices. The Historical display depends on the day and time selected (see below).

The **Typical** option pertains only to road speeds (not congestion) and represents road speeds that are typical when there is no traffic congestion.

- **Historical Day and Time:**
  Using the radio buttons and slider bar or arrows, indicate a day and time of day for which historical data will be displayed.

If you close the Traffic Display window, the selected options will remain in effect (unless you turn the traffic display on or off using the Map Features dialog).

6.2 Traffic Display on the Map
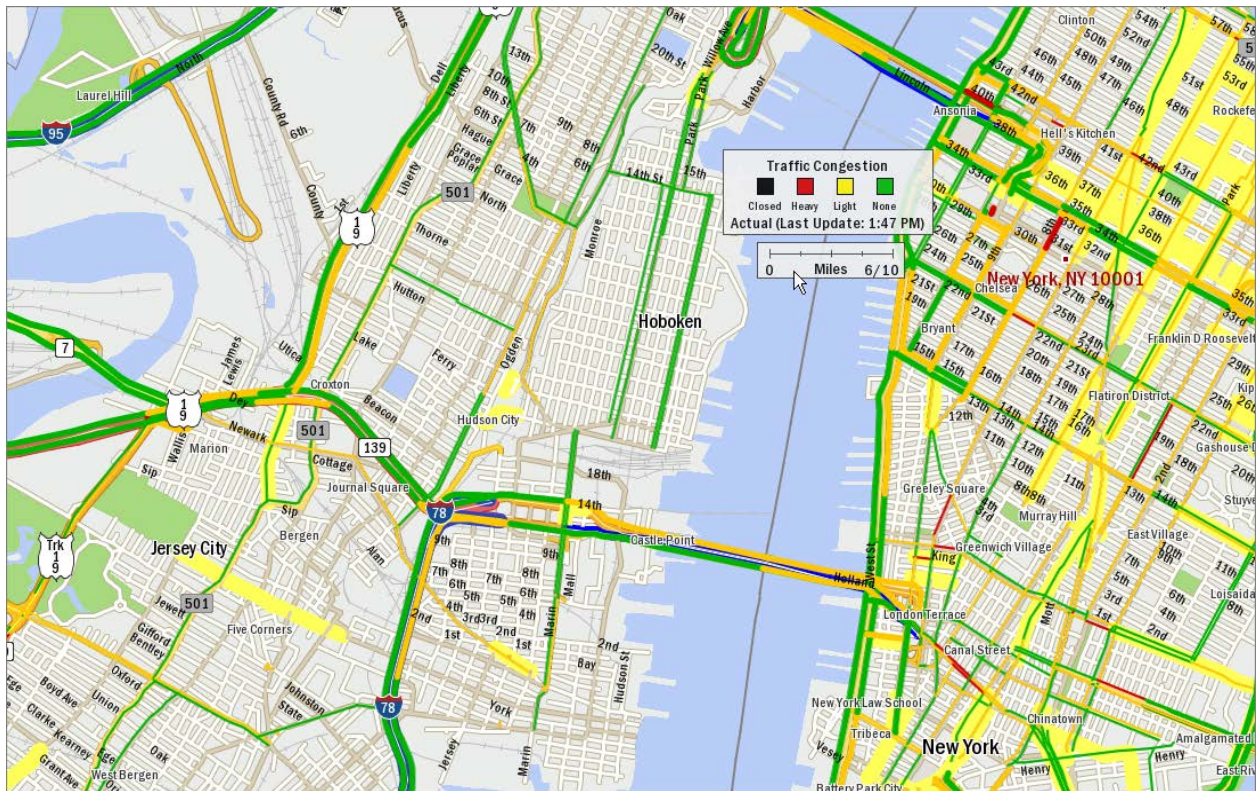
Real-Time Traffic Display – Holland and Lincoln Tunnels, New York, NY

The traffic display can be seen on the map at a zoom level of 5 or higher (the zoom level is shown in the title bar of the map window).

To turn the **Traffic** legend on or off, select the Map tab > Customize group > *Legends* > *Traffic*. As with the other legends in the map window, you can click on this legend and drag it to where you want it.

The settings in the Traffic Display window determine which Traffic legend – Traffic Congestion or Road Speeds – appears on the map. In the example above, congestion is displayed and the Traffic Congestion legend shows the colors used to draw traffic patterns.

Both legends shown below include update times, indicating the display of real-time data.

Traffic Legends – Real-time Display

The legends below pertain to a Historic traffic display, and show the day of the week and time that are set in the Traffic Display window.

Traffic Legends – Historic Display

In the Road Speeds legend, distances are in miles by default. This setting can be changed in the Route Options or Default Route Options dialog (see 8.10 and 8.11).

NOTE: If you are working with a real-time display, it may take anywhere from a few seconds to a minute or so for the display to update, depending on the speed of your Internet connection and when updated traffic information becomes available.

If ALK's PC*MILER|Tolls add-on module was purchased with PC*MILER, you can generate accurate, up-to-date toll costs for U.S. and Canadian lanes with these costs integrated directly into the routing database and reported turn-by-turn per trip. Columns for toll costs appear in the Detailed Route Report, State/Country Summary Report, and Comparison Report, and tolls can be reported in the currency of choice – either U.S. or Canadian dollars – using the current conversion rate.

Accurate toll cost calculations can optimize productivity in multiple departments of your organization by assisting in the routing, rating, and reconciliation processes. Now you can determine whether it's more cost-effective to take a toll route, or a non-toll route with a few additional miles, before routing a vehicle.

PC*MILER|Tolls generates up-to-date, truck-specific toll costs for toll roads, bridges, tunnels, and border crossings for U.S. and Canadian toll authorities. The data that PC*MILER|Tolls provides includes:

- Both cash and discount toll program transactions.
- Range (ticket) and barrier (coin drop) data in addition to two-way tolls, one-way tolls, and tolls that vary by direction.
- Quarterly toll data updates to ensure accuracy when calculating toll costs throughout the year. (PC*MILER|Tolls users receive notification by email when quarterly updates are available, or may use *Check for Updates* in the Help tab to ensure they have the most current data.)
- Time-of-day variations factored into truck-specific toll rates when and where they occur, including peak and non-peak tolls, if time-based routing is active in the route window. (See Chapter 5 for a detailed description of how to use time-based routing.)
- Toll rates for smaller 2-axle vehicles when automobile routing is generated.
- Future expected changes to toll rates included as available.
- Thirty-five (35) toll discount programs throughout the U.S. and Canada (states in which each program apply are listed below).

GENERAL NOTES on TOLL RATES: Unless vehicle dimension settings are customized in the Route Options dialog (see section 9.5), PC*MILER|Tolls calculates toll costs for an 80,000 pound, 5-axle vehicle. Reported toll amounts are accurate and up-to-date, but not always exact due to several factors: first, several – though not many – toll roads have rates that are based on weight (for example, the Detroit-Windsor Tunnel charges a set rate per 100 lbs. gross weight in both directions); second, some toll charges (in various states) are time-of-day

driven, and in this case, tolls will be calculated using the highest (peak) rate unless PC*MILER's new time-based routing is used; and third, future and proposed toll rates are incorporated into the database where appropriate and these rate changes may occasionally be cancelled at the last minute.

Also note the following: if the user does not specify a departure/arrival date, the computer's system date is used as the date of departure to determine the effective toll rates for the trip (which include any rate changes that become effective during the trip). However, this is not true for the time of day. If the user does not specify a time of departure/arrival, the base rate for the date (i.e. highest rate) is used without reference to the system time.

States/Provinces Where Each Discount Program Applies:

SPECIAL NOTE: The "EZPass-WV" or "EZPass-NJ" options apply to those who purchased the EZPass service in West Virginia or New Jersey.

Discount Program	Valid In	Discount Program	Valid In
407 ETR Transponder	ON Canada	**I-Pass**	IL
A25 Transponder	QC Canada	**K-Tag**	KS
A30 EXPRESS Transponder	QC Canada	**Laredo Trade Tag**	TX
BreezeBy	OR	**LeeWay**	FL
Cruise Card	GA	**MACPASS**	NS Canada
Downbeach Express Pass	NJ	**NC Quick Pass**	NC
E-Pass	TX	**NEXPRESS TOLL**	MI ON Canada
E-Pass Canada	NS Canada	**Palmetto Pass (PAL PASS)**	SC
ExpressPass	NY, ON Canada	**Peach Pass**	GA
EXpressToll	CO	**PikePass**	OK
EZ Tag	TX	**Quickpass**	BC Canada
EZPass	DE, IL, IN, ME, MD, MA, NH, NJ, NY, NC, OH, PA, RI, VA, WV	**StraitPASS**	PEI Canada
EZPass-NJ	NJ	**SunPass**	FL
EZPass-WV	WV	**TollTag**	LA, TX
FasTrak	CA	**TReO**	BC Canada
GeauxPass	LA	**TxTag**	TX
Good To Go	WA	**Wabash Pass**	IN
GO-PASS	CO		

The following discount programs have been discontinued in the database:

Discontinued Program	State	Versions Available	Version Discontinued	Reason
C-Pass	FL	24-28	29	Adopted SunPass
FAST LANE	MA and all EZPass facilities	21-28	29	Only EZPass is used now
Smart Tag	VA	21-28	29	Only EZPass is used now
NEXUS	NY, ON	27	28	Discontinued
I-Zoom	IN	21-26	27	Replaced by EZPass
B-Pass	NB	17-25	26	Toll discontinued
M-Tag	MD	17-23	24	Replaced by EZPass
NH Tokens	NH	17, 18	19	Replaced by EZPass
O-Pass	FL	21-23	24	Absorbed into SunPass
Ready Toll	OH	17, 18	19	There is no discount associated with this program, it's simply a "debit card" used to pay tolls
Transpass	ME	17- 23	24	Replaced by EZPass

NOTE: Toll costs on the New York State Thruway for "5-axle 48' Trailer" and "5-axle 53' Trailer" vehicles are now accurately reported. The N.Y. Thruway lists separate toll rates for these vehicle types and now PC*MILER|Tolls has been calibrated to report the correct rate depending on the routing option selected. If the Vehicle Dimension length is set to 53' in the Route Options dialog, the corresponding 5-axle 53' Trailer toll cost will be reported.

NOTE Also: Some toll exits in the U.S. and Canada have recently become "electronic only"; for example, starting December 1st, 2008, the 183A toll road in Texas has become cashless. The way to pay for this toll road is either by TXTag (their electronic toll payment method) or Pay By Mail. Pay By Mail is for those who don't have the electronic discount program – their license plates get photographed and a bill is mailed to the owner. Commonly referred to as "video tolling" or "video billing", the rates for this payment method are higher to cover processing costs.

See *Appendix G* for a list of all electronic-only toll roads.

All Pay By Mail and video toll rates are considered as "Cash" in PC*MILER toll rate calculations.

7.1 Turning On Toll Cost Calculation *(U.S. and Canada only)*

(PC*MILER|Tolls must be purchased and licensed) Toll costs can be calculated along with mileage, cost and time estimates when you generate any PC*MILER route with at least an origin and a destination using any available route type or option, including Hub routing.

To turn on toll calculations for an individual route, select the Routes tab > Route group > *Options* > **Tolls** tab and make sure **Tolls Enabled** is checked. This option is turned on by default when PC*MILER|Tolls is installed.

Toll costs can be calculated with or without discount programs applied. By default, **Use Discount Programs** is checked on in the Route Options dialog and all discount programs are selected. You can customize these settings by unchecking the Use Discount Programs option or any of the listed discount programs.
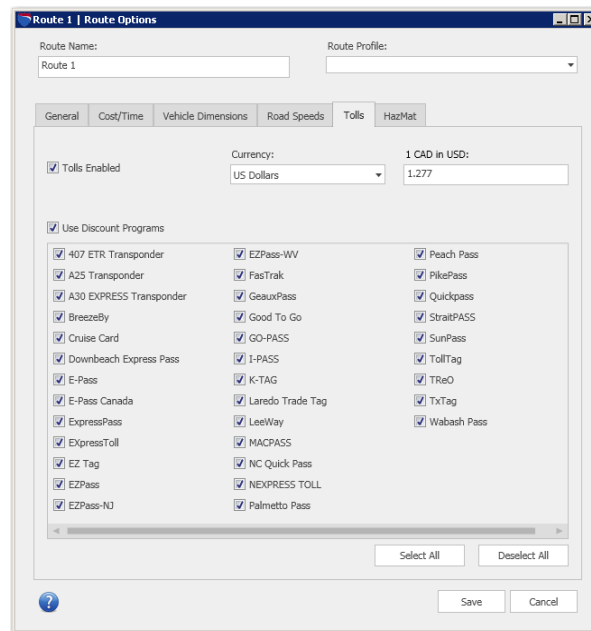
Route Options Dialog, Tolls Tab

To switch to Canadian dollars as the currency for toll calculations, use the **Currency** drop-down list to choose **Canadian Dollars**. The PC*MILER default **Conversion Rate** is displayed to the right and can be customized by simply typing in a new rate. Whenever toll calculations are turned on, the currency in use is shown in each route window along with the discount program status.

NOTE: Settings in the **Tolls** tab not only affect PC*MILER, but also determine which discount programs will be in effect whenever you use PC*MILER|Connect, PC*MILER|Spreadsheets, or PC*MILER|BatchPro to calculate tolls.

When toll calculations are turned on, you'll see a **Tolls** column in the route window. Toll fees for each leg (not cumulative) will be listed in addition to mileage and cost/time estimates. For total cumulative toll costs, run a State Summary Report or Comparison Report (see sections 8.3 and 8.6).

Toll Calculation by Trip Leg in the Route Window

The default Tolls settings are:

- **Tolls Enabled** is checked
- **Use Discount Programs** is checked
- All discount programs are selected
- **Currency** is US$
- **Version 29 Default Conversion Rate** is USD/CAD = $1.00/$1.277

7.2 Customizing Toll Costs By Weight and Axle
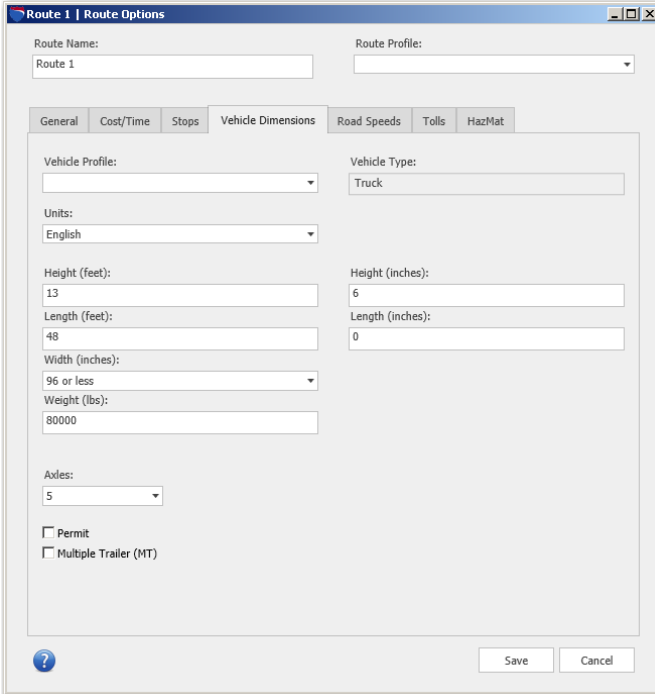
Jurisdictions in the U.S. and Canada that have toll roads class their toll rates either by vehicle weight or by a vehicle's number of axles. Beginning in PC*MILER Version 22, setting the vehicle's dimensions in the **Vehicle Dimensions** tab of the Route Options dialog enables toll cost reporting based on vehicle weight and number of axles.

The available toll rates by axle are from 2 (two axle dual rear wheel vehicles only) up to 14 axles, including multi-trailer rates and automobile routing. For toll rates categorized by weight, each toll road authority publishes its own definition of weight classes, and PC*MILER categorizes and reports these toll rates based on the published weight category and range provided.

For those who are new to the arena of toll cost reporting, the jurisdictions that charge toll costs by weight and those that charge by axle are identified below. This information is important to know if you intend to use PC*MILER to generate toll costs that are customized by weight and axle.

- **Jurisdictions Charging Tolls by Vehicle Weight:** MI, NJ, ON, PA

- **Jurisdictions Charging Tolls by Axle:** AK, AL, BC, CA, CO, DE, FL, GA, IL, IN, KS, LA, MA, MD, ME, MI, MN, MO, NB, NC, NE, NH, NJ, NS, NY, OH, OK, OR, PA, PEI, QC, RI, SC, TX, UT, VA, VT, WA, and WV

To enter the weight and/or number of axles for a vehicle either before or after stops have been entered for a route, select the Routes tab > Route group > *Options* > **Vehicle Dimensions** tab.

Route Options Dialog, Vehicle Dimensions Tab

In the Vehicle Dimensions tab, only the weight, axle number and multiple trailer settings affect toll cost reporting. Enter these parameters as follows:

Weight: Weight may be entered in pounds or kilograms (select **English** or **Metric** at the top of the dialog). Weights up to 132,000 lbs. or 59,874 kg. may be entered. Weights less than 9,000 lbs./4,082 kgs. will generate routing appropriate for automobiles and small vans. See section 9.5 for more on how PC*MILER handles vehicle weight, and

section 11.2 on custom vehicle profiles. Vehicle weight is 80,000 lbs. by default.

Axles: Select a number from the drop-down. The default is 5 axles. Note that 2 axle includes two axle dual rear wheel vehicles only.

Multiple Trailer (MT): Check this option if the vehicle is a long combination vehicle with multiple trailers. (See Important Note below.)

IMPORTANT NOTE: Twin trailers with 7 or more axles are not allowed on the Massachusetts Turnpike east of Exit 14. If you enter 7 or more axles and check "**Multiple Trailer (MT)**", PC*MILER will return a $0 toll rate for that section without a warning.

When done, click **Save** to close the Route Options dialog, then generate your route.   PC*MILER will calculate the appropriate route and report the corresponding toll costs according to the vehicle dimensions you set.

If custom information is not entered in the Vehicle Dimensions tab, the default values will be used. The default values are based on a typical Class 8 vehicle with a weight of 80,000 lbs./36,287 kg. and 5 axles.

NOTE: Users have the option to set up profiles for individual vehicles or for specific vehicle types that include vehicle dimensions and time/cost settings (the same ones that are found in the Route Options dialog). See section 11.2 for a full description of this option.

7.3 Tolls and Plaza Names in the Detailed Route Report

Toll costs are calculated by trip leg in the Detailed Route Report. To generate this report, select the Routes tab > Route group > *Reports > Detailed Report* or press **F5** on your keyboard. For more on this report, see section 8.2.

To assist users in toll cost reconciliation, toll plaza names have been added to the database. Some plazas listed in this report have multiple sub-plazas at the same location, but PC*MILER assigns one name to all of them. For a list of toll authorities and names where sub-plazas exist, see *Appendix F*.

Abbreviated plaza names appear in the Detailed Route Report in a new column titled "Toll Plaza". If the Toll Plaza column is blank, either the agency does not have a transponder program or the agency has a transponder program but the toll plaza abbreviations used on that agency's invoices could not be determined at this time.
The format of the plaza names is as follows: the agency abbreviation, the entry plaza abbreviation, and the exit abbreviation. In cases where the entry and exit plazas are the same (barrier toll), the plaza abbreviation will be shown only once.

NOTE: If a Toll Discouraged route is run with toll calculation disabled in the Route Options dialog, and the route needs to use a toll road, the Detailed Route Report will report toll miles and the associated cost for that leg of the trip.

Toll Costs by Trip Leg and Toll Plaza

Detailed Route Report

7.4 Getting Toll Totals in the Comparison Report

The PC*MILER Comparison Report calculates total toll amounts, along with mileage and estimated time and cost, for two or more trips. To generate this report, click the **Comparison** button on the toolbar or press **F4** on your keyboard.

The two routes shown below in a sample report are identical except that the Toll Discouraged routing option was turned on for Route 2.

Toll Total For Each Trip

Route	Type	Origin	Destination	Distance	Cost	Hours	Tolls	Fuel	Other	Labor	Est. GHG
Route 2	Practical, Borders Open, U...	Princeton...	Pittsburg...	332.4	516.34	5:29	130.40	42.62	63.16	180.15	1138.92
Route 2 -...	Practical, Toll Avoid, Border...	Princeton...	Pittsburg...	369.2	459.18	6:24	20.00	58.41	70.16	210.61	1264.98

Comparison Report Showing Toll Discouraged Routing Option

7.5 Toll Information in the State/Country Report

The PC*MILER State/Country Report automatically calculates toll totals at each stop, by state, and by trip if tolls were calculated.

A breakdown of toll costs by the type of discount program applied is also available. To obtain this breakdown, select the File application menu > *Application Settings* and check **Show Toll Discount Info** in the Application Setttings dialog then click **Save**. This can be done before or after the State/Country Report is generated. Discount program information will appear in the state/country summary section at the bottom of the report, in the Tolls column (see the example below).

To generate this report, first run the trip in the route window, then press **F6** on your keyboard or click the **State** button on the toolbar. See section 8.3 for additional information about this report. The location of toll cost data in the report is shown below.

State/Country Report with Toll Discount Information (Print Preview)

NOTE: If a Toll Discouraged route is run with toll calculation disabled in the Route Options dialog, and the route needs to use a toll road, the State/Country Report will report toll miles and the associated cost for that leg of the trip.

In addition to the mileage, time and cost information that is returned when a route is run, there are six different PC*MILER reports that can be generated: Mileage, Detailed Route, State/Country, Driver's, Road Type, and Comparison.

When a report is generated, it opens in a separate pane. You can control the location of this pane within the PC*MILER application window using the *Report Location* and *Layouts* buttons in the Window tab. Any subsequent reports will open in the same pane.
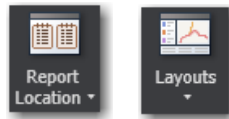
To float an individual report in its own window, right-click the report title in the tab at the top of the report, then select "**Float**". To dock it, right-click the report title again and select "**Dock**".

State/ Country			Route	Miles	Hours	Interchange	Leg Miles	Leg Hours	Total Miles	Total Hours
Origin: 15295 Pittsburgh, PA, Allegheny 0.00										
PA	South		Grant St	0.3	0:00	+ Grant St Ramp	0.3	0:00	0.3	0:00
PA	Keep right		Ramp	0.4	0:01	+ Ramp I-376	0.7	0:02	0.7	0:02
PA	East		I-376 - Penn-Lincoln Pkwy	6.9	0:06	+ I-376 Exit 78A	7.6	0:08	7.6	0:08

Display Options for an Individual Report Window

8.1 Mileage Report

When a route is run, mileage, time and cost information is returned in the route entry window. A Mileage Report can be printed that summarizes this information and also includes cumulative miles by trip leg and greenhouse gas estimates. Select the File application menu > *Print Report > Mileage.*

Note that this report does not appear on-screen, printing it is the only way to generate it.

Printed Preview of Mileage Report

8.2 Detailed Route Report

After running a route, select the Routes tab > Route group > *Reports* > *Detailed* or press the **F5** key to display a Detailed Route Report for the active route.

Detailed Route Report

This report includes direction of travel, roads, interchanges, times and distances, stops, and toll costs (if PC*MILER|Tolls is installed and toll calculation is turned on). The report displays additional information depending on the options selected when the route was run.

TIP: You can double-click a line in this report to zoom into that route segment on the map.

The columns from left to right in the Detailed Route Report give you the following information for each route segment: state/country, toll or free road, direction of travel, route (with exit number where available), distance, driving time, interchange point, cumulative distance and time for the trip leg, and cumulative distance and time for the whole trip. For each stop on the route, the on-duty status and duration is shown. (The default for these values is on-duty and 0 hours. Stop times and on-duty status can be set in the HOS Manager, see section 3.11.)

If PC*MILER|Tolls is installed and toll calculations are enabled, leg toll costs and the corresponding toll plazas will be shown in two columns on the far right.

If ETA/ETD information was entered for the route, there will be an additional **Stop Time** column to the far right. This column will show the estimated time of arrival at every stop and toll plaza on the route. If a target arrival time was entered, the estimated departure time from the origin will be shown. If a departure time was entered, that time will be shown at the origin. The column header for the Stop Time column will reflect the *Time Zone Display* setting (File application menu > *Application Settings*).

A dollar sign (**$**) to the left of the directional column marks segments that are toll roads. Alerts such as height, weight, 53-Foot restrictions, and geofence warnings are noted where they exist, appearing before the pertinent road segment in the report. (See section 1.6.5 for more on 53-Foot restrictions in reports.)

NOTE: Due to the way PC*MILER identifies locations and calculates routes and distances, occasionally a toll barrier won't be reported in the Detailed Route Report. When this happens anywhere on a route, an alert will appear at the very bottom of the report stating that this has occurred. You can then check all route segments marked with a dollar sign to find the omission.

At the point where a route begins to use a road segment that travels through a geofenced area, a warning like this will appear that includes the name of the road, the name of the geofence set, and the name of the individual geofence:

Warning * US-1 * : New Jersey : NewBrunswickNJ

If one of the Hazardous Material route types was used (PC*MILER|HazMat installation is required), the Detailed Route Report will include a **Restriction** column on the far right. Any restricted road segments on the route will be labeled with the appropriate hazmat restriction type in this column. (PC*MILER uses these route segments in its calculations only if no other alternative is possible, or the alternative is extremely impractical.) Routes designated as preferred for hazardous materials will <u>not</u> be indicated in the report.

Detailed Route Report Showing HazMat Restriction Column
(PC*MILER/HazMat installation required)

8.3 State/Country Report

State/Country Report with Toll Information (Print Preview)
(PC*MILER/Tolls installation required for toll cost calculation)

After running a route, you can select the Routes tab > Route group > *Reports* > *State/Country* or press the **F6** key to display a table summarizing mileage by state, province, or country traveled.

The State/Country Report lists leg and total miles, cost, and time estimates in columns from left to right. Leg and total toll costs will also be shown if PC*MILER|Tolls is installed and toll calculation is turned on. The last two columns show leg and cumulative greenhouse gas estimates in pounds or kilograms of carbon dioxide equivalent per gallon/liter of fuel. (Values that affect cost, time, toll and greenhouse gas estimates are set in the Route Options dialog.) A breakdown of the route by state/country and category is at the bottom of the report.

If PC*MILER|Tolls is installed and toll calculation is turned on, a breakdown of toll costs by the type of discount program applied is also available. Select the File application menu > *Application Settings* and check *Show Toll Discount Info* in the Application Settings dialog, then click **Save**. This can be done before or after the State/Country Report is generated. You will see the discount breakdown in the **Toll($)** column in the summary section.

8.3.1 Order of States in the State/Country Report

In the State/Country Report, states and countries are displayed in alphabetical order by default. To display them in the order they occur along the route, select the Routes tab > Route group > *Options* (or to change the default setting, General group > *Defaults*) and choose **Route Order** under **State/Country Report Order**. States/countries will now appear on the report as they would in a driver log.

8.4 Driver's Report (Driving Instructions)

Select the Routes tab > Route group > *Reports* > *Driver's* to generate easy-to-read detailed driving instructions with turn directions and distance between turns, and driving times that include the duration of each stop if entered in the HOS Manager. This report includes all alerts that appear in the Detailed Route Report.

Driver's Report (Print Preview)

If the route was run using real-time traffic data and the departure time for the trip is within 15 minutes of the current time, the **Delay** column just to the right of the **Time** column identifies delays caused by the current traffic conditions on the first 15 miles of the trip.

8.5 Road Type Report

Select the Routes tab > Route group > *Reports* > *Road Type* to generate a distance breakdown by PC*MILER road category for the active trip. See section 9.6.1, *Average Road Speeds*, for detailed descriptions of these road types.

18505 Scranton, PA to 50318 Des Moines, IA : 1 Stop
Miles: 1,032.7   Time: 16:09   Cost: $1,524.40
Truck Config: Weight: 80,000lbs   Height: 13ft 6in   Length: 48ft 0in   Width: 96in   Axles: 5
North America, Practical, Borders Open, Highway Only, Ferry Distance, Discount Tolls USD

Stop	Leg Miles	Interstate	Interstate - No Ramps	Divided	Primary	Ferry	Secondary	Ramp	Local	Toll Road
Scranton, PA 18505	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Toledo, OH 43601	472.3	464.8		0.0	0.0	2.2	0.0	0.0	4.1	0.0	146.1
Des Moines, IA 50318	560.4	554.4		0.0	0.4	2.5	0.0	0.0	4.4	0.0	207.0
Total	1032.7	1019.2		0.0	0.4	4.7	0.0	0.0	8.5	0.0	353.1

Road Type Report (Print Preview)

8.6 Comparison Report

If two or more routes have been generated and are open, a Comparison Report is available that lists the total mileage, cost and time estimates for all open routes. To create this report, select the Routes tab > Utilities group > *Comparison Report* or press **F4** on your keyboard.

Columns from left to right show trip totals for miles, estimated cost, estimated hours, toll costs (if PC*MILER|Tolls is installed and toll calculation is turned on), estimated fuel cost, estimated cost of labor, estimated miscellaneous costs, and estimated greenhouse gas emission (these last four columns are not shown in the resized report window below). Values that affect cost, time, toll and greenhouse gas estimates are set in the Route Options dialog.

Route	Type	Origin	Destination	Miles	Cost	Hours	Tolls	Fuel	Labor	Other	Est. GHG
1	Practical	Scranton, PA 18505	Des Moines, IA 50318	1032.7	1524.40	16:09	65.88	678.13	196.21	584.18	3820.92
2	Shortest	Scranton, PA 18505	Des Moines, IA 50318	1013.1	1506.98	17:19	22.75	665.27	192.49	626.47	3748.48

Comparison Report, Practical vs. Shortest Routing (Print Preview)

NOTE: The Comparison Report lists only the origin and destination of each route. If there are stop-off points in one route and no stop-offs in another, the mileage discrepancy between these routes could be large. Be sure to check intermediate stops in the route window if you see differences in mileage that are larger than expected.

8.7 Font Size and Page Layout

To see a preview of how the report will look when it is printed, check **Show Print Preview** in the upper left corner of the report. The Print Preview view will be displayed along with a toolbar for editing the page layout and font size. Place your cursor over any button on the tool bar to see a tooltip that briefly describes what that button is for.

To change the font size in the active report, use the *Font Size* drop-down on the toolbar. For adjustments to the page layout, there are six buttons that control formatting (portrait vs. landscape) and magnification.

To hide columns or change their position or width, right click on any column header in a report and click on "**Column Chooser**". See section 3.12.2 on how to use the Column Chooser.

Right Clicking a Column Header in a Report

8.8 Printing Reports

All PC*MILER reports can be printed. To print a report, first check **Show Print Preview** in the upper left corner.
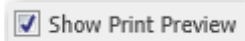
A toolbar for editing will display and you'll be able to see what the printed copy will look like. To print, do one of the following:

1. Click the **Print** button (upper right corner);

2. Click the Print icon on the toolbar; or

3. Press **Ctrl+P**.

To directly print a report without first generating it in its own window, select the File application menu > *Print Report* > and choose a report type.

8.9 Saving and Copying Reports

PC*MILER reports can be saved to disk – choose *Save Report to File* from the File application menu. In the Save Report dialog, select the folder where the file will be saved and enter a file name in the **File Name** field. Click **OK** to save.

In addition, PC*MILER reports can be copied to the clipboard for use with other Windows® programs such as Microsoft® Word. To copy and paste a report:

1. Select the report in the Reports window.

2. Check **Show Print Preview** in the upper left corner.

3. In the toolbar that displays, click the Copy icon.

4. In the application you are copying to, press **Ctrl+V** to paste.

NOTE: With some reports you may get better results if you save the report as a .CSV (comma separated value) file and then import that file into your target application. This may be especially true for the Detailed Route report with its many columns. To save the active report, select the File application menu > *Save Report to File* and select ".csv" as the file type.

The Route Options dialog enables you to change the options and parameters used to calculate a route. There are three ways to open the Route Options dialog:

- Select the Routes tab > Route group > *Options*;
- Press **Alt+F3**; or
- Click the gear button (⚙) in a route window and choose *Options.*

When you edit routing options in this dialog, only the currently active route window will use the new parameters. If you open a new route window, it will use the PC*MILER default options. To edit the defaults, see section 9.7. Note that if you save a route, the options that were active for that route will be saved along with it.

PC*MILER chooses routes by minimizing a cost equation that combines distance, certain factors times distance, and certain fixed factors. A PC*MILER user can choose between different versions of the equation and numerical values by choosing among different routing options. Options in the **General**, **Vehicle Dimensions**, and **Hazmat*** tabs affect which route is chosen. The **Cost/Time**, **Road Speeds**, and **Tolls*** route options affect time/cost and toll data that is returned when a route is generated, but do not affect which route is chosen.

* The Hazmat and Tolls tabs are available only if the related data modules have been purchased.
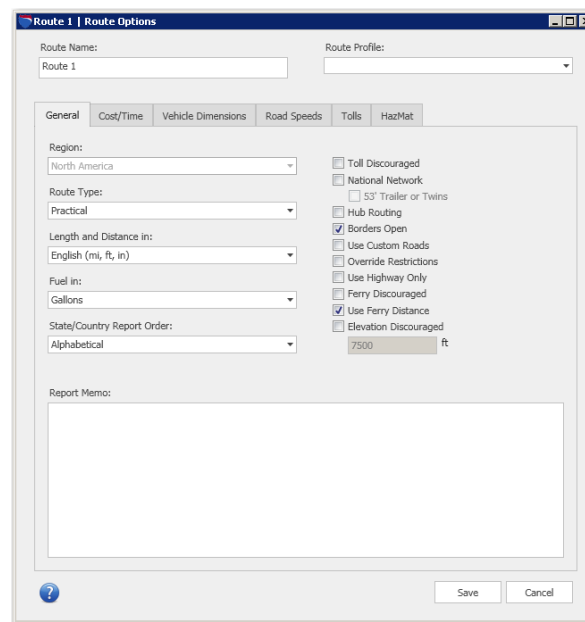
Route Options Dialog

9.1 Route Name

The **Route Name** field at the top of the Route Options dialog can be used to assign a name to your route that will appear at the top of the route window, in the title bar of report windows, and in the Route legend in the map window.

9.2 Route Profile

The **Route Profile** drop-down in the upper right corner of the Route Options dialog will list all custom route profiles that have been created in PC*MILER (see section 11.3). When you select a profile, the options specified by that profile will be in effect for the route. Using a route profile is optional.

9.3 General Options
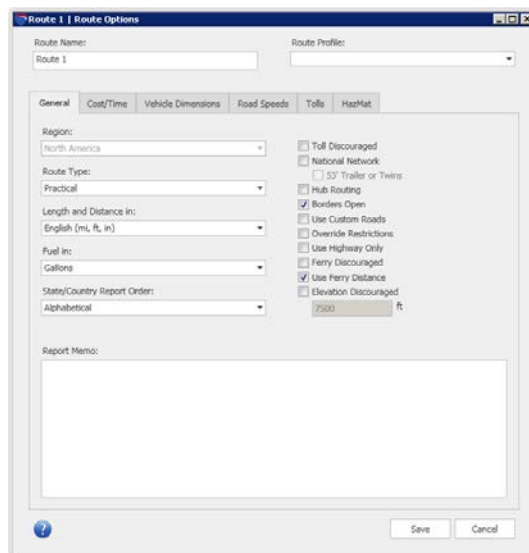
Route Options Dialog, General Tab

9.3.1 Region

North America is the only region that is available with PC*MILER. If PC*MILER|Worldwide or DTOD data is installed, other regions can be selected: click the down arrow and select a region from the drop-down. Available worldwide regions are: **Africa**, **Asia**, **Europe**, **Middle East, Oceania** and **South America**. The active region is displayed at the top of each new route window.

To change the **default region** from North America to another region, see section 9.7 on creating default options.

9.3.2 Route Type

> **NOTE:** Changing the route type may affect the time and cost estimates that are calculated for any given route. See the explanation of how route type affects routing at the beginning of Chapter 9.

In the drop-down **Route Type** list you will see the three basic route types that PC*MILER can generate: **Practical**, **Shortest**, and **Fastest**. Fastest routing is available only if PC*MILER|Traffic is installed and activated. See sections 1.6.1 – 1.6.3 for full descriptions of these route types.

In addition to selecting a basic route type, check any of the routing options to the right that you wish to apply to route calculations:

Toll Discouraged: Avoids long stretches of toll roads without taking long or impractical detours to avoid toll bridges and tunnels. See section 1.6.6 for the full description.

National Network: *(U.S. only)* Based on the National Network, a U.S. government-designated system of highways originally established by the Surface Transportation Assistance Act of 1982 (STAA). This option will calculate routes that stay on the National Network to the maximum extent possible. Given that many areas are not directly served by the National Network, the origin and stop-offs on a route may not be on the Network. See section 1.6.4.

53' Trailer or Twins: *(U.S. only)* This option is only available if National Network is checked. Its calculations are based on National Network routing, with the addition of roads that permit 53'/102" trailers or twins. See section 1.6.5 for the full description.

Hub Routing: Check this option to generate mileage from one origin to a virtually unlimited number of destinations. See section 9.3.3.

Borders Open: If Borders Open is checked, PC*MILER will ignore international boundaries in generating the best route. If this option is not checked, the number of border crossings will be minimized; for example, if all your stops are in the "lower 48" United States, the resulting route will stay in the United States even though the most practical or shortest route would normally involve some Canadian mileage. "Open" or "Closed" will appear in the title of each route window, indicating which option is selected.

Use Custom Roads: If checked, the route you run will take into account the road, state, and override preferences found in the Avoid/Favor and States/Roads Managers. "Custom" will appear in the title of the route window when this options is active. See sections 11.1-11.3. **This box <u>must be checked</u> for user-designated road preferences to be active when running routes.**

Override Restrictions: Check "Override Restrictions" to generate routes that waive truck restrictions pertaining to specific sizes and weights, but that continue to avoid truck-prohibited and truck-discouraged roads. When this option is

active, all height, length, width and weight restrictions will be overridden. If a route uses roads that have any of these types of restrictions, the Detailed Route Report will list them. This allows you to determine the largest or heaviest vehicle you can assign to drive that route.

By default the Override Restrictions option is not checked, in which case PC*MILER routing will avoid truck-prohibited and truck-discouraged roads, as well as truck-restricted roads that pertain to the size and weight set in the current vehicle dimensions or profile.

Below is a table showing the North American states/provinces that have a jurisdiction-wide weight limit, with exceptions listed.

State/ Province	Weight Limit*	Exceptions	Ref.
SK	76,038 lb (34,500 kg)	- 87,058 lbs (39,500 kg) on designated primary highways year-round and other designated primary highways for 9 months/year, and a maximum distance of 15 kilometers on any secondary provincial [not including municipal] highway or provincial road - 91,466 lbs (41,500 kg) on most roads in winter, i.e. Nov16-Mar14 (except for certain restricted exceptions) - special restrictions on certain listed highways	(1) (2)
MB	76,038 lb (34,500 kg)	- 82,650 lbs (37,500 kg) on designated "A1" highways - 87,058 lbs (39,500 kg) on designated "RTAC" highways - Winter weights higher in some cases - "If a delivery needs to be made off of a designated truck route the vehicle is allowed to stray from the truck route via the **shortest distance** to its destination. Once the delivery has been completed the vehicle must **return to the truck route the same way**"	(3) (4)

* For the PC*MILER default vehicle configuration: 5-axle tractor/48' long semitrailer combination. Higher limits > 80,000 lbs apply in SK & MB for 6+ axles.

Ref:
1. http://www.highways.gov.sk.ca/trucking/
2. Saskatchewan Vehicle Weight and Dimension Regulations, 1999, page 17, Sec 12(1)(KK)
3. http://www.gov.mb.ca/mit/mcd/mcpd/pdf/normalloading.pdf & http://www.gov.mb.ca/mit/mcd/mcpd/twlm.html
4. Email from Dwight Solon, Director, Motor Carrier Enforcement Programs, Province of Manitoba, 11/03/08

NOTE for PC*MILER|Streets Users: An error message will appear if you attempt to enter an address that is on a truck-prohibited road.

SAFETY NOTE: For winter roads in Manitoba and North West Territories, Canada, road safety information for heavy vehicles using these roads can be found at: **http://www.gov.mb.ca/**

Use Highway Only: *(PC*MILER|Streets required for street-level routing)* This option is enabled by default <u>except when PC*MILER|Streets, PC*MILER|Energy and/or RouteSync is licensed and installed</u>. When checked, routes are calculated using an air distance from the midpoint of the truck-usable highway segment that is nearest to the destination postal code or city/state. Routes to stops that include a street-level address are calculated to the truck-usable highway-level road that is closest to the entered address. This functionality matches the base PC*MILER

highway product. If this option is not checked, PC*MILER calculates the route and driving distance using local streets between the nearest truck-usable highway segment and the stop. All stops, whether they contain a street-level address or not, clean up via the shortest air distance to the nearest road (highway or street level). This distance may appear as "Local" in the Detailed Route report.

Ferry Discouraged: When checked, routes will avoid ferries if possible, i.e. unless it would be extremely impractical or impossible to do so. No warnings are issued when a ferry must be used on a Ferry Discouraged route.

Use Ferry Distance: Includes ferry distances in mileage and cost calculations. When turned off, the ferry portion of a route will not contribute to the mileage and cost. The setting does not affect the actual route on the map and travel time is not affected.   Note that the "Total" column of the State/Country report always includes ferry distances, even if this option is turned off here.

Elevation Discouraged: This option enables users to set a customized limit on the elevation of the roads a route will use. Enter the elevation in feet that should cause PC*MILER to calculate an alternate route. Elevations at or above this height will be avoided unless 1) it is extremely impractical to do so; or 2) a stop or destination on the route is located at the higher elevation. No warnings are issued when a road that exceeds the elevation limit must be used. Elevations are from the National Elevation Data produced by the U.S. Geological Survey.

The default route type settings are:

- **For North America:** Practical, Borders Open, Highway Only*, Use Ferry Distances, Discount Tolls – USD**
- **For All Other Regions:** Practical, Borders Open, Highway Only*, Use Ferry

  * *If PC*MILER/Streets, PC*MILER/Energy or RouteSync is installed, street-level routing is the default for this option*
  ** *PC*MILER/Tolls must be installed*

9.3.3 Hub Routing

PC*MILER enables you to generate mileage from one origin defined as the "hub" to an unlimited number of destinations in the same route window. This type of route calculation gets its name from the image of a wheel with spokes and a hub at the center.

To generate a route in Hub mode, check **Hub Routing** in the Route Options dialog and click **Save** to save this setting. All subsequent routes run in the current route window will be in Hub mode unless this setting is changed. The Detailed Route Report and State/Country Report are both available for hub routing.
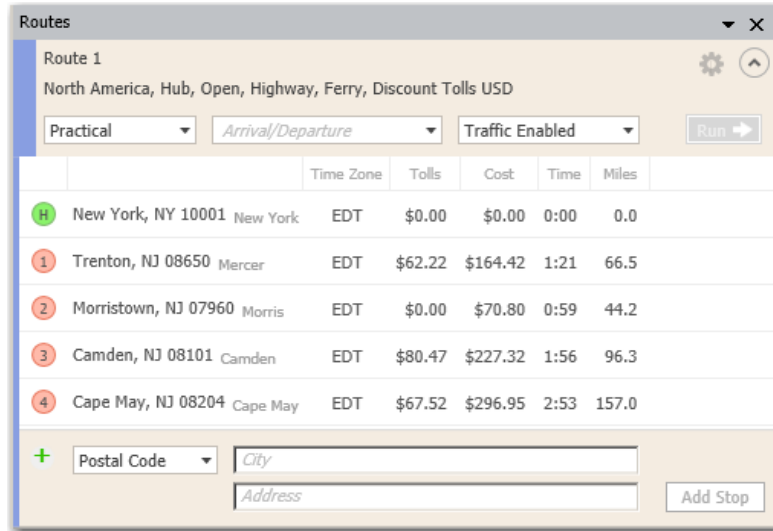
Hub Routing with New York, NY 10001 as the Hub

9.3.4 Unit of Measure Options

PC*MILER will report distances in either English or Metric units. The unit of measure route options affect trip costs, average road speeds, and the distances shown on reports and in route windows when you generate a route.

Under **Length and Distance in** select **English** (miles, feet, inches) or **Metric** (kilometers, meters, centimeters). Under **Fuel in** select **Gallons** or **Liters**. The default settings for all world regions are **Miles** and **Gallons**.

9.3.5 State/Country Report Order

Choose whether State/Country reports will have states/countries listed in **Alphabetical** order by state/country, or in the **Route** order (as in a driver log). The default setting is alphabetical.

9.3.6 Report Memo (Customized Reports)

The **Report Memo** field allows you to create custom report headers. The text you type in this field will appear at the top of all printed reports (check **Show Print Preview** in the Reports window to see how the header looks). By default the **Report Memo** field is left blank.

9.4 Cost/Time Options – Trip Costs
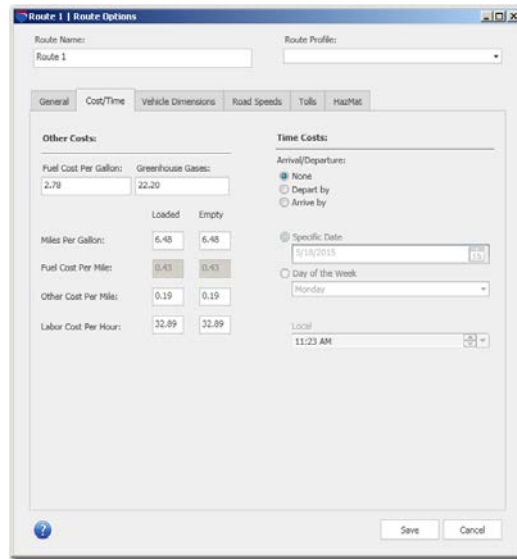
Route Options Dialog, Cost/Time Tab

PC*MILER calculates a total cost for each route generated. This cost estimate is determined by multiplying a dollar amount per mile by the number of miles. Cost parameters can be edited for empty and loaded miles to better reflect your actual costs, or you may choose to use the PC*MILER default values.

In the **Cost/Time** tab of the Route Options dialog, the trip costs that go into the dollar amount per mile have been broken out into fuel costs, labor costs, and "other" maintenance or miscellaneous costs. For information purposes only, a greenhouse gas emissions value is also included. You will see these values reflected in the columns of the Comparison report. The greenhouse gas estimate also appears in the State Distance Summary report.

9.4.1 Fuel Costs

NOTE: If the measure of distance is set to **Metric** and/or the unit of measure for fuel is set to **Liters** in the General tab, the units and default values in the Cost/Time tab will change accordingly.

Fuel Cost Per Gallon/Liter: All world regions have the same default value for fuel cost, depending on the unit of measure (see note above), as follows:

- **Per Gallon** = $2.78
- **Per Liter** = $.73

Miles/Kilometers Per Gallon/Liter: Default values for all world regions are:

- **Miles/Gallon** = 6.48
- **Kilometers/Gallon** = 10.43
- **Miles/Liter** = 1.71
- **Kilometers/Liter** = 2.75

Fuel Cost Per Mile/Kilometer: (For reference only) Values in these fields are based on the Fuel Cost Per Gallon and MPG, and are used only to calculate the fuel cost total that appears in the Comparison Report (this report is automatically created when Least Cost routing is generated, or it may be run whenever two or more generated routes are active).

NOTE: For reference information pertaining to default fuel costs, see the notes at the end of section 1.3, *What's New in PC*MILER 29?*.

9.4.2 Labor and Other Costs

Enter your own **Other Cost Per Mile** and **Labor Cost Per Mile** values, or use the default values. Labor and Other cost totals for a route appear only in the Comparison Report (this report is automatically created when Least Cost routing is generated, or may be run whenever two or more routes have been generated).

The default values for these settings in all world regions are:

- **Other Cost Per Mile** (loaded or empty) = $0.19
- **Other Cost Per Kilometer** (loaded or empty) = $.12
- **Labor Cost Per Hour** (loaded or empty) = $32.89

NOTE: For reference information pertaining to default trip costs, see the notes at the end of section 1.3, *What's New in PC*MILER 29?*.

9.4.3 Greenhouse Gases Emission Estimate

Enter the pounds per gallon (or liter) emissions as CO_2 equivalent in the **Greenhouse Gases** field, or use the default values. Leg and total greenhouse gas (GHG) emission estimates appear in the State/Country Report, and a total GHG estimate appears in the Comparison Report (this report is automatically created when Least Cost routing is generated, or may be run whenever two or more routes have been generated).

The default **Greenhouse Gases** settings for all world regions* are as follows:

- If Gallons are selected in the Fuel In field: 22.20 lbs.
- If Liters are selected in the Fuel In field: 5.86 lbs.

* These default settings are based on values for North America that were provided by the U.S. Environmental Protection Agency (EPA). For more information, see http://www.epa.gov/otaq/climate.

9.4.4 ETA/ETD

A target arrival or departure date/day of the week and local stop time can be set for the trip under **Time Costs**. With this setting active, PC*MILER will return an estimated time of arrival/departure (ETA/ETD) at each stop on the route. This same setting is found in a drop-down in each route window. See Chapter 5, *Time-Based Routing*, for more information. This setting can be included in custom route profiles – see section 11.3. Follow the steps below:

1. Select either **Depart by** or **Arrive by**. Depending on your choice, PC*MILER will calculate time estimates at each stop based on either a departure time at the origin of the trip or an arrival time at the trip's final destination.

2. Select either a **Specific Date** or **Day of the Week** as the target day for departure or arrival. For a specific date, you can either type in a date in the format MM/DD/YYYY (zeros are not necessary for single-digit months and days), or click the calendar icon to choose a day from the calendar. For a day of the week, select a day from the drop-down list.

3. Enter the targeted local time at the trip's origin (if entering a departure time) or destination (if entering an arrival time).

4. Click **Save** to save your settings.

9.4.5 Stop Costs

Beginning in Version 29, stop times and costs can be entered in the HOS Manager. See section 3.11, *Hours of Service Management,* for details.

9.5 Vehicle Dimensions

The vehicle dimension options enable you to generate routes based on custom vehicle dimensions. Building on the foundation of PC*MILER's previously existing routing database and routing options, users can generate routing that conforms to the requirements of a vehicle's height, length, width and weight.

If a vehicle weight and/or height is entered, PC*MILER route calculations will take into account restrictions on roads and bridges to ensure that the vehicle's weight/height is below the restriction(s). Vehicle weight, length and width

information is checked against the threshold at which a truck becomes "oversized" and appropriate routing is generated.

Additionally, PC*MILER supports calculation of routes and toll costs for smaller vehicles (vans, pickup trucks, SUVs, automobiles, etc. that are classed less than 9,000 lbs./4,082 kgs.) with a "Full-size van" profile option or your own custom vehicle profile that includes dimensions that meet the required criteria.
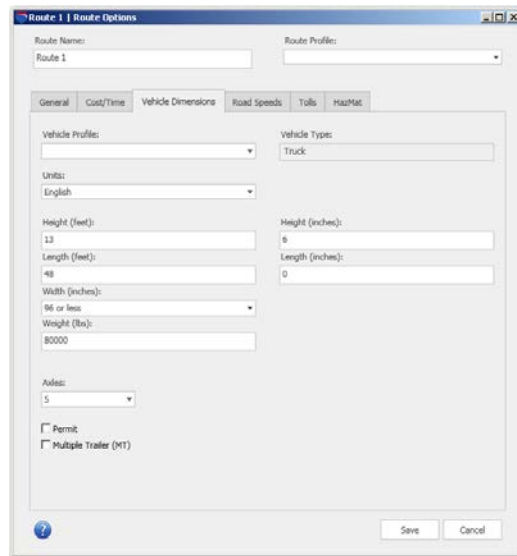
Route Options Dialog, Vehicle Dimensions Tab

9.5.1 Vehicle Dimensions, Profiles and Types

Below is a description of how PC*MILER vehicle types, profiles and dimensions are related.

The **Vehicle Type** indicates how PC*MILER will route the vehicle. You will see the vehicle type displayed in the upper right corner of the Vehicle Dimensions tab. The vehicle type is determined by the vehicle dimensions entered, either manually or by choosing a Vehicle Profile. In other words, the vehicle type will update automatically when dimensions are changed. It is informational only and cannot be edited by the user. Possible categories are Auto, Truck (Medium-Duty), or Truck (Heavy).

A **Vehicle Profile** (full-size van, 48 ft semitrailer, etc.) is a template containing a particular combination of vehicle dimensions that can be conveniently reapplied as needed. A selection of vehicle profiles are shipped with the software and appear in the Vehicle Profile drop-down out of the box. Vehicle profiles can also be defined by end users (see section 9.5.5). Custom vehicle profiles appear in the Vehicle Profile drop-down in Route Options after they are created and saved.

Vehicle Dimensions (weight, length, height, width, axles, trailers) are specific values that will affect the selection or avoidance of road segments that restrict vehicles to below those dimensions. These dimensions can trigger warning messages if a restriction is violated because an alternate road segment was either unavailable or too impractical. Additionally, the number of axles is used in calculating tolls. Vehicle dimensions determine the vehicle type (mentioned above) as shown in Table 1 below.

Table 1. PC*MILER Rules for Inferring Vehicle Type from Vehicle Dimensions

Dimension	Automobile if ALL values are <u>less than or equal to</u>	Medium Truck if ALL values are <u>less than or equal to</u>	Heavy truck			
			All other values are regular heavy truck, unless…	In USA, Nat'l Network and State Oversize if ANY values are greater than	In Canada* in SK and MB, State Oversize if greater than *see note below	In Canada* in MB, National Network if greater than *see note below
Weight	8,500 lbs.	26,000 lbs.			76,038 lbs. (34,500 kg.)	82,650 lbs. (37,500 kg.)
Length	20 ft.	26 ft.		48 ft.		
Height	7 ft.	13 ft. 6 in.				
Width	96 in.	96 in.		96 in.		
Axles	2 (4 tires)	2 (6 tires)				
Trailers	None	None				

* The rules for Canada in the table above are for truck tractors with a single 5 or 6 axle semi-trailer. Customers who run heavy straight trucks (this would be unusual) or doubles (more common) in SK or MB are advised to consult the Weights and Dimensions Compliance Guides published by those provinces, and to select the PC*MILER National Network and/or 53' Foot Trailer or Twins route type as appropriate.

NOTE: An alternative to entering vehicle dimensions manually is, where appropriate, to select the PC*MILER National Network and/or 53 Foot Trailer or Twins routing type.

NOTE ALSO: If the user enters a vehicle height over 13 ft. 6 in., PC*MILER will avoid jurisdictions with lower overall limits in its calculations wherever possible and practical. You will receive a warning message in the Detailed and Driver's reports if any of these jurisdictions cannot be avoided on a route.

9.5.2 Setting Vehicle Dimensions

NOTE: Oversize permits will allow for "normal" truck routing if you have purchased the appropriate permits for your oversize vehicle for routing on assumed 80,000 lb./36,287 kg. roadways (see section 9.5.3 below). Nonetheless, if the route includes a road segment for which the truck as configured will require a permit, the destination will be represented by a solid red circle in the route window (position the cursor over it to see the warning) and a warning will appear in the Detailed and Driver's reports.

Units: Select **English** (feet, inches, and pounds) or **Metric** (meters and kilograms) as the unit of measure for the options in this tab. The default is English in all regions

Height: The maximum vehicle height is 13 feet 6 inches, or 4.11 meters, and this is the default setting for all regions except Europe. For Europe, it is 12 feet 5 inches, or 3.78 meters. The minimum height is > 0.

Length: The maximum trailer length is 53 feet or 16.15 meters, and this is the default setting for all regions except Europe. For Europe, it is 39 feet 4 inches, or 11.99 meters. The minimum length is > 0.

NOTE: If the 53' Trailer or National Network routing option is selected in the **General** tab and a custom vehicle dimension is also entered in the **Length** field, both attributes are weighed in the overall calculation but the routing option takes precedence.

Width: For English units, select **96 or less**, **102 or more**, or **98**. For Metric units select **2.44 or less**, **2.59 or more**, or **2.48**. Note that entering the larger vehicle width category will use National Network routing in the U.S. and Canada except where necessary for local deliveries. The default width setting for all regions is **96 or less**.

Weight: For all regions except Europe, weights up to 132,000 lbs. or 59,874 kg. may be entered, and minimum weight is 1000 lbs. or 454 kg. In Europe, the range is 1500 – 156,748 lbs. or 680.39 – 71099.7 kg. Weight less than 9000 lbs./4082 kg. will generate routing appropriate for automobiles and small vans (see section 9.6.4). See section 9.5.1 above for more on vehicle weight. The default weight setting for all regions is **80,000 lbs**.

Axles: *(For PC*MILER|Tolls users only)* The number of axles entered here is used only for the calculation of toll costs using the PC*MILER|Tolls add-on module. If PC*MILER|Tolls is not installed, this option will be disabled. See Chapter 7 for toll cost calculation information. The default number of axles is **5**.

9.5.3 Permit and Multiple Trailer Options

Permit: If you try to enter a weight greater than 80,000 lbs/36,387 kg and this option is not checked, a warning will display in the Route Options dialog: "Trucks weighing over 80,000 lbs (36,287 kgs) require a permit in most U.S. states." Check **Permit** to continue. This field does not affect routing, it only serves as a reminder that a permit is usually required for the vehicle dimensions entered.

Multiple Trailer (MT): Check if the vehicle is a long combination vehicle with multiple trailers. (See section 7.2 for toll calculation considerations.)

By default, neither of the above options are checked.

9.5.4 Vehicle Dimensions for Automobile Routing

To generate a route that ignores all commercial truck restrictions (Truck Restricted, Truck Prohibited and Truck Discouraged), you can either 1) use the "**Full-size van**" vehicle profile (select it from the **Vehicle Profile** drop-down in the **General** tab of the Route Options dialog), or 2) enter your own vehicle dimensions that conform to the criteria for automobile routing in PC*MILER. Those criteria are as follows **(all criteria must be met)**:

- 2 axles;
- less than or equal to 9,000 pounds/4,082 kilograms in weight;
- less than or equal to 7 feet/2.133 meters in height;
- less than or equal to 20 feet/6.096 meters in length;
- less than or equal to 96 inches/2.438 meters in width.

Automobile routing will relax all regulations that pertain to trucks, allowing the route to take advantage of parkways and other roads that larger and/or heavier and/or commercial vehicles are prohibited from using. PC*MILER will also use toll rates that apply to 4-tire vehicles with 2-axles, which often differ from rates that apply to 6-tire 2-axle vehicles. *(PC*MILER/Tolls must be installed to access toll costs)*

9.5.5 Custom Vehicle Profiles

In addition to setting default route options, PC*MILER also lets users create custom vehicle profiles to enable quick entry of vehicle or fleet attribute sets that you use often when routing. This time-saving feature enables you to set up and save groups of vehicle dimension and cost/time settings for easy access in the future. Using custom vehicle profiles ensures that the defined settings are consistent for the particular vehicle type selected for a route.

To use custom vehicle profiles, select the Routes tab > Utilities group > *Vehicle Profile*. In the Vehicle Profiles Manager dialog, you can select a profile to view, edit, or delete, or you can create a new custom profile. For North America, sample profiles are provided in the drop-down for full-size van, 26' straight truck, 28' double trailers, 40' straight truck, 48' semi-trailer, and 53' semi-trailer vehicles. The sample profiles can be edited, but not deleted.
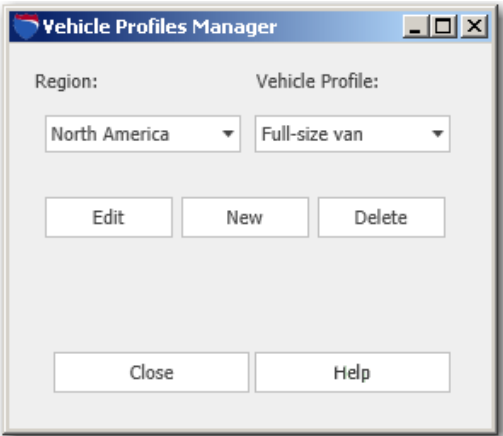
Vehicle Profiles Manager

To create a new custom profile, click **New.** A dialog will open that has two tabs – **Cost/Time** and **Vehicle Dimensions**. The editable fields in these tabs are the same ones found in the Route Options dialog. Enter a profile name and the desired edits in each tab. When finished, click **Save**. The new profile will be saved as a .DAT file in the **Data\Base\Save** folder of the PCMILER29 installation folder.

Options for Vehicle Profile – Cost/Time Tab
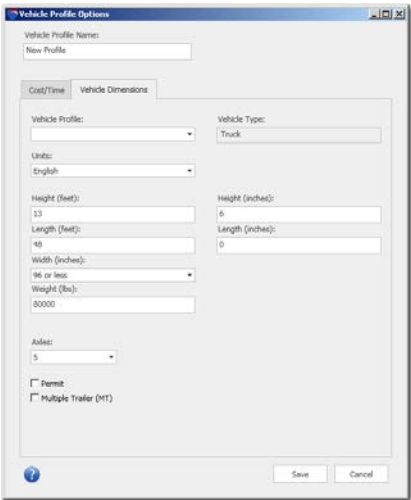
Options for Vehicle Profile – Vehicle Dimensions Tab

NOTE: The "**Full-size van**" profile is intended for use with **vans, pickup trucks, SUVs, automobiles, etc. that are classed less than 9,000 lbs./4,082 kgs.** The automobile routing that is generated from this profile ignores all commercial truck restrictions, and if toll rates are calculated, will use toll rates that apply to small vehicles with 2-axles, which often differ from rates that apply to larger 2-axle vehicles.

NOTE For PC*MILER|Worldwide or DTOD Users: When creating, accessing, or editing a custom vehicle profile, you must perform the additional step of specifying a region. Each vehicle profile is applicable to only one region.

An unlimited number of custom profiles can be defined. The profiles you create will appear in the drop-down of available profiles in the Route Options and Default Route Options dialogs, **General** tab.

Once a profile is set up, it can be used globally (all new routes will use the selected profile in route calculations) or applied to each new route as appropriate:

- To apply a profile to all new routes, choose the Routes tab > General group > *Defaults*. At the top of the Default Route Options dialog, select the desired profile from the drop-down **Vehicle Profile** drop-down. Click **Save** to save this profile as the default.

- To apply a profile to a single route, choose the Routes tab > Route group > *Options*. At the top of the Route Options dialog, select the desired profile from the drop-down **Vehicle Profile** drop-down. Click **Save** when you are finished editing options for this route. Repeat for each new route.

By default, custom profiles are not used. Sample vehicle profiles are provided in the **Vehicle Profile** drop-down (Route Options and Default Route Options dialogs).

9.6 Road Speeds
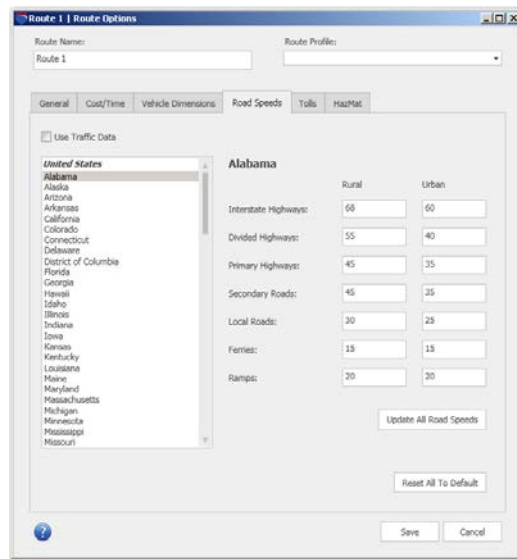
Route Options Dialog, Road Speeds Tab

9.6.1 Average Road Speeds (Estimated Travel Time)

NOTE: Custom road speeds are not available when **Use Traffic Data** is active. You need to uncheck this option to enter road speeds.

PC*MILER calculates time estimates for each generated route. These estimates are computed by summing up the estimated time traveled on each road segment on the route, plus an added stop-off time for each stop along the route if this was set in the HOS Manager.

Each PC*MILER road class has two average road speed parameters assigned to it, one for "urban" and one for "rural". Spreading the estimated average speed over the various road classes gets a more accurate estimate of the total time traveled based on the quality of the road used. See descriptions of road classes below.

For PC*MILER default road speeds for jurisdictions in all world regions, see *Appendix E*.

To customize road speeds, first select a jurisdiction from the pick list of jurisdictions, then enter your new road speed(s) by road class. Click **Save** to save your changes, or **Cancel** to exit the Route Options dialog without saving changes.

To apply your changes globally to all jurisdictions, click **Update All Road Speeds**. These changes will affect time and cost estimates in route calculations.

To restore all road speeds to the PC*MILER default settings, click **Reset All to Default**. For a table of PC*MILER default road speeds, see *Appendix E*.

To use traffic data in time estimate calculations, check **Use Traffic Data**, then click **Save** to close the dialog. This same option is available in a drop-down in each route window. See section 5.2 on using traffic data.

PC*MILER ROAD CLASSIFICATIONS

Interstate Highways	• The primary function of these roads is to move high volumes of vehicular traffic over medium to long distances at high speeds • Can be accessed only via access ramps
Divided Highways	• Major arteries that move heavy volumes of traffic at moderate speeds • Can be limited access in some areas but may also offer access from local roads • Usually have a barrier or median that prevents movement between lanes of opposing traffic • Medians may have crossovers that are part of the normal traffic pattern • Left turns are often restricted, both off of the highway and onto the highway • Usually multi-lane • Many but not all U.S. highways are in this class
Primary Highways	• Move significant volumes of traffic at moderate speeds • Most state roads fall into this class
Secondary Roads	• These roads move moderate volumes of traffic over short to moderate distances • Carry vehicles from local roads to higher class roads
Ramp	• A connecting road leading on or off of a main road or highway
Local Roads	• Function is to provide access to homes and properties
Ferry	• Ferry routes (boarding/exit time not included)
Energy	• Roads that lead in or out of well sites and other facilities *(requires a PC*MILER/Energy license and installation)*

9.7 Creating Your Own Default Options

To change the default values for the settings in the Route Options dialog, select the Routes tab > General group > *Defaults*. The Default Route Options dialog is identical to the Route Options dialog (covered in sections 9.1 - 9.6 above), but allows you to set and save defaults rather than changing the settings only for the currently active route window.

Enter your edits as you would in the Route Options dialog. Click **Save** to save your settings. Every time you open a new route, the defaults that you set will be in effect. Note that default options will not be applied to saved routes when you open them.
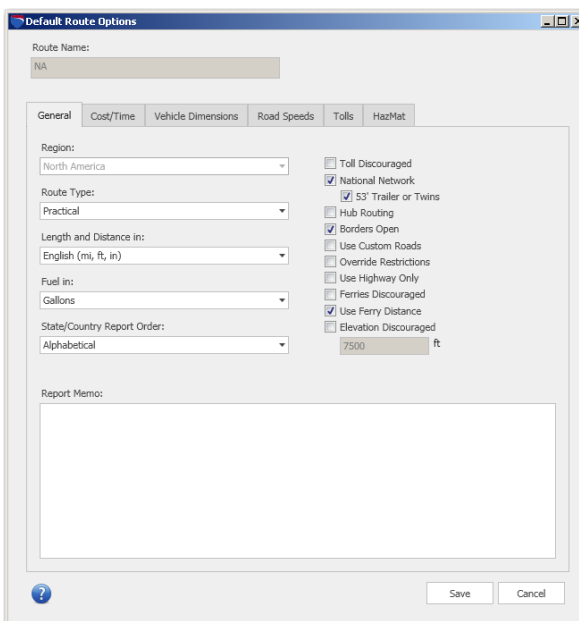
Default Route Options Dialog – General Tab

The PC*MILER map window is like an electronic road atlas. All routes generated by PC*MILER are automatically displayed in the map window. This enables you to examine routes in detail, visually evaluate routing alternatives, and perform a variety of "what-if" analyses.

*The PC*MILER Map Window*

10.1 Routes on the Map

To see a route on the map, first enter an origin, a destination, and any intermediate stop-off points in a route window and then click the **Run** button in the route window or press the **F10** key on your keyboard. PC*MILER will automatically create a graphic display of the route you just ran.

Up to eight routes can be displayed simultaneously, with each route drawn in a different color to differentiate them. The Route Legend on the map and a color

bar in the route window show the color used for each route (see section 10.6 on legends).

To maximize the size of the map so that it fills the whole PC*MILER application window, close the Routes and Reports panes. To toggle the map window between hide and display, select the Window tab > Windows group > *Map Window*. To restore the default layout, in the same tab select *Layouts > Default Layout.*

10.2 Frame Options

To frame a **country or area** within the region selected in the Route Options dialog, select the Map tab > View group > *Frame > Areas >* and select an area from the sub-menu.

*(PC*MILER/Worldwide only)* To frame a worldwide **region** on the map, select the Map tab > View group > *Frame > Regions* and choose a region from the sub-menu.

To frame **the active route** on the map, do one of the following:

- select the Routes tab > Route group > *Frame*; or

- select the Map tab > View group > *Frame > Frame One Route >*; or
  > Auto Frame Routes to automatically frame each route that is generated.

To frame all currently open routes, select the Map tab > View group > *Frame > All Routes.*

There are several ways to frame a stop, see section 10.3, *Zoom Options,* below.
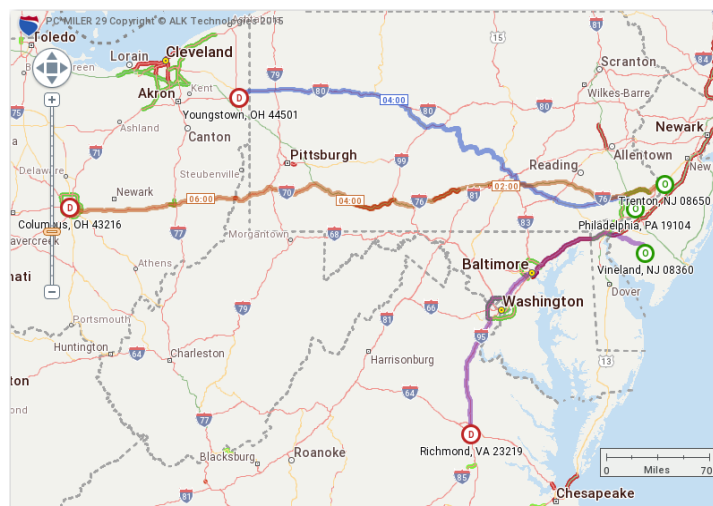
Framed Routes on the Map

10.3 Zoom Options

The PC*MILER map window features 20 possible zoom levels. You will see the current zoom level in the window's title bar (e.g. "Zoom Level 14 of 20"). There are several ways to zoom your view of the map in and out, described below.

To zoom into a specific area, select the Map tab > View group > *Box Zoom* (this option is turned on by default). Then drag a box around the area: press and hold the left mouse button down and drag the cursor on the map. Repeat as necessary.

To zoom directly to a stop you have entered in the route window, highlight it on the stop list, then do one of the following:

- double-click the highlighted stop;
- right-click the stop name and select *Zoom to Stop* from the menu;
- select the Routes tab > Route group > *Frame*;
- or choose *Zoom to Stop* from the right mouse menu off the map.

Other ways to zoom your view of the map are:

- simply double-click a point on the map;
- use your mouse's scroll wheel: rotate the mouse wheel up to zoom in and down to zoom out;
- choose *Zoom In* or *Zoom Out* from the right mouse menu off the map;
- or use the slider bar and compass in the upper left corner of the map as follows: either 1) click, hold and drag the zoom control to move up (zoom in) or down (zoom out); or 2) click the plus sign or minus sign to move up or down one zoom level. To pan north, south, east or west as needed, click the directional arrows on the compass.
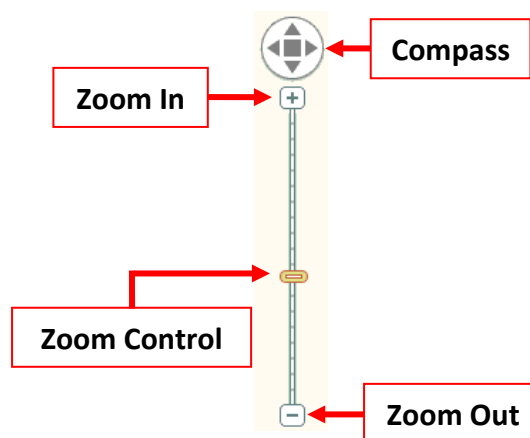
10.4 Drag Map or Pan To Shift the View

There are several ways to pan your view of the map in any direction.

Drag the Map:

Select *Drag Map* in the right mouse menu off the map or click the Map tab > View group > *Drag Map*. With your cursor (now in the shape of a hand) in the map window, hold the left mouse button down and drag in the desired direction. The map will redraw the new view.

To turn this feature off, click *Drag Map* again.

Pan:

One way to pan the map is: select *Pan* in the right mouse menu off the map, then select any direction from the sub-menu. You will see the map view shift in the chosen direction. Other ways to pan are using the scroll bar (see section 10.5 below) or the compass (see section 10.3).

10.5 Scroll Bars in the Map Window

The PC*MILER map window includes scroll bars that are hidden from view until activated. To activate, touch any edge of the map window with your cursor and a translucent scroll bar will appear. Click on this scroll bar to move the map incrementally in the direction indicated by the arrow, or click and hold to pan your view.

Scroll Bar for Map Panning

10.6 Legends

Legends on the map can be hidden or shown – select the Map tab > Customize group > *Legends*. Legends that are checked in the menu will be displayed.

Any legend can be moved to a different position – simply click on it, hold down the left mouse button, and drag it to the desired location. Available legends are:

- **Road Legend:** Shows how PC*MILER road classes appear on the map. This legend is displayed by default. Road colors will depend on which map style is chosen.
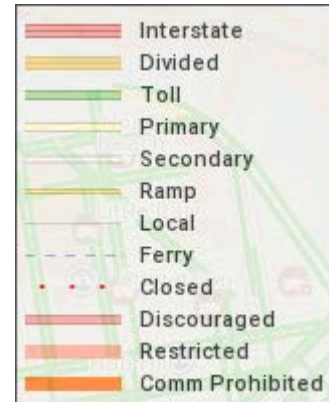
Road types included in each classification in the Road Legend are:

Interstate	Multi-lane toll free and urban highways
Divided	Divided highways, urban access roads
Primary	Non-divided highways
Ferry	Ferries
Secondary	Non-divided highways, urban access roads, ferries
Ramp	Ramps
Local	Truck-discouraged roads (as defined by PC*MILER)
Toll	Toll roads and urban highways
Closed	Temporary road closure.
Discouraged*	Not compatible for trucks, as determined by PC*MILER
Restricted*	Most kinds of trucks prohibited, as determined by the controlling governmental authority. Appears if "Truck Restrictions" is checked in the Map Features dialog. ***** For more on truck-discouraged vs. truck-restricted roads, see sections 1.6.7 and 11.1.2.
Designated	Designated 53' road network (these roads have either "State Oversized", "Oversized Access", or "National Network" designations on them). Appears if "Designated Truck Routes" is checked in Map Features.
Comm Prohibited	Roads that are prohibited for commercial truck traffic. Appears if "Commercially Prohibited" is checked in Map Features.

- **Route Legend:** Appears if at least one route window is open; provides a key to the color(s) used to draw each generated route on the map. Routes are listed in the order they were generated.
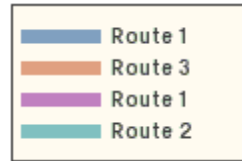
- **Scale Bar:** A standard component of most maps, providing the scale of miles/kilometers. Appears by default. To change from miles to kilometers, use the Default Route Options dialog – see sections 9.3.4 and 9.7.
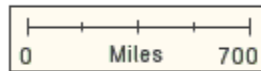
- **HazMat Legend:** If the PC*MILER|HazMat add-on data module was installed, a legend showing hazmat restrictions will be available.

- **Traffic Legend:** For PC*MILER|Traffic subscribers only, this legend shows the significance of the colors used for traffic flows on the map, along with update times (for real-time data) or day/time information (for historic data).
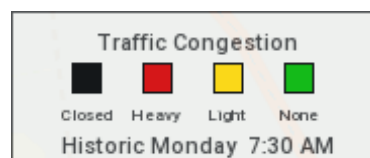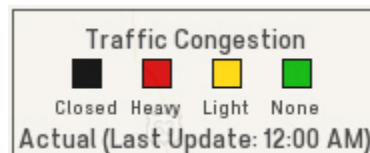
10.7 Hiding, Displaying and Layering Map Features

You can control what features are displayed and in what order features are drawn using the Map Features dialog. Select the Map tab > Customize group > *Map Features*, or choose *Features...* from the right mouse menu off the map to bring up this dialog.
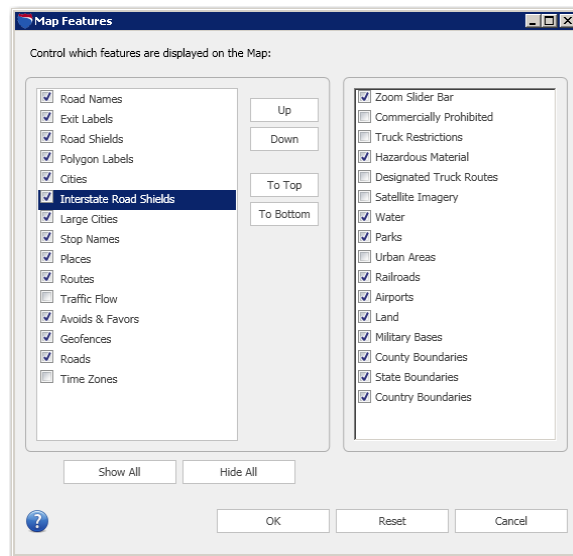
Map Features Dialog

Checked features will be displayed – click any check box to toggle between hiding and displaying an individual feature. Click **Show All** or **Hide All** to check or uncheck all listed features. Click on the **Reset** button to return to the default settings.

Additionally, the **Up**, **Down**, **To Top**, and **To Bottom** buttons can be used to manipulate the order in which the features *on the left* are drawn. For example, putting "Places" on top of all other features will make points of interest (POIs) stand out more on the map. The order of features in the list on the right cannot be changed, though they can be shown or hidden.

Click **OK** to close the Map Features dialog and redraw the map.

TIPS: Truck Restrictions: Note that by default "Truck Restrictions" is turned off in the map display. If you want to see all truck-restricted roads highlighted on the map, check this feature. Then refer to the Road Legend to see the color of the highlight that is used in the active map style for these roads.

Points of Interest: If your map is too cluttered with points of interest, uncheck "Places" to hide them.

10.8 Map Styles

The PC*MILER map window can be drawn in one of nine available map styles. Each style features a different color scheme and overall appearance. Available styles are **Classic**, **Contemporary**, **Default**, **Lightness**, **Black and White**, **Night**, **Road Atlas**, **Satellite**, and **Smooth**.

To change the map style, select the Map tab > Customize group > *Map Style >* and click on one of the style options.

10.9 Satellite Image Layer on the Map *(North America only)*

(Requires Internet connectivity)   To display a photographic satellite image superimposed onto the PC*MILER map, select the Map tab > Customize group > *Map Style > Satellite*; or turn the "Satellite Imagery" feature on in the Map Features dialog (Map tab > Customize group > *Map Features*).

For best visibility, the map should be zoomed in to at least Zoom Level 10. (The zoom level is displayed in the title bar of the map window – see section 10.3 on the many ways to zoom your map view.)
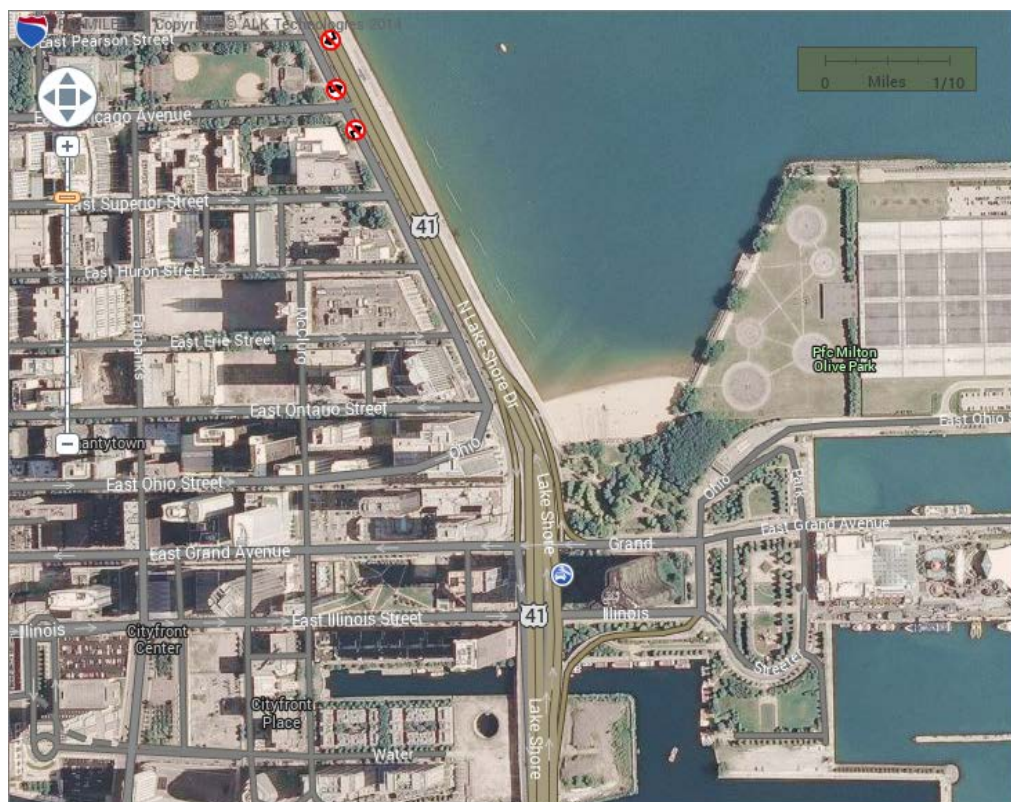
*Satellite Image on the PC*MILER Map (Zoom Level 16) – Chicago, IL*

10.10 Route Distances and Times on the Map

Select the Map tab > Customize group > *Tooltips* > *Route Distance* to have a tooltip appear when you place your cursor over a generated route on the map. The tooltip will show the distance between the selected point and the route's origin, and between the selected point and the route's final destination.
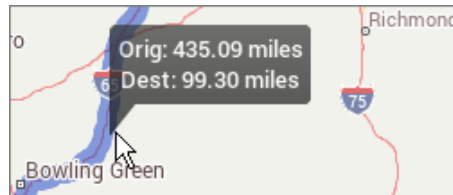
Tooltip on Route Near Bowling Green, KY

The estimated number of on-duty hours from the origin of a route is automatically shown on the map when a route is generated:
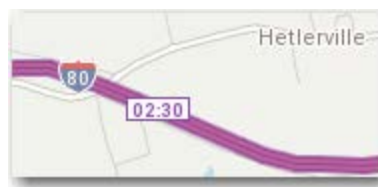
Hours:Minutes from the Origin of a Route

10.11 Right Mouse Map Menu

A right mouse menu off the map window is available to give you quicker access to frequently-used map options. To use it, place your cursor in the map window and click the right mouse button, then highlight the option you want.

10.12 Stop Labels

Stops are represented on the map by circle icons with borders of different colors: green for the origin of a trip, red for the destination, deep blue for a stop, light blue for an HOS rest stop, and gray for a waypoint.

By default, each stop is labeled with the name, address (if entered) and ZIP code of the location, or its latitude/longitude position. Stop labels can be toggled on/off by selecting the Map tab > Customize group > *Stop Labels,* or by selecting *Stop Labels* in the right mouse menu.

10.13 Using the Mouse To Pick Stops

PC*MILER gives you the ability to enter stops in the route window directly from the map window without typing. You can use the mouse to select any point on a highway, labeled city, unlabeled location, intersection, truck stop, or latitude/longitude point. See section 3.6.24 for a description of this feature.

> **TIP:** Notice that as you pass your cursor over the map without pressing the mouse button, its latitude/longitude position is automatically tracked and appears in the status bar in the lower left corner of the program window.
>
> Here's an easy way to enter a latitude longitude point: right mouse click on the map and choose *Copy Latitude/Longitude*, then click in a route window's city field and paste (**Ctrl-V** or *Paste* in the right mouse menu). Note that it's easier to copy lat/longs accurately at higher zoom levels.

10.14 Infogroup Points of Interest on the Map *(U.S. only)*

PC*MILER offers as a standard feature the ability to search, display and route to millions of points of interest (POIs) from Infogroup's U.S. business database. Truck stops, weigh stations, business locations, rest areas, intermodal ramps, and many other landmarks are visible on the map.

Each of the icons below represents a POI category that you might see on the PC*MILER map. You can search POIs in several of these categories using the POI search tool in any route window (see section 3.9).

> **TIP:** If the map is too cluttered with points of interest at a particular location, select the Map tab > Customize group > *Map Features* and uncheck "Places" to hide them.

Address	Games	Rest Area
Airport	Generic POI	Restaurant
ATM	Government/Municipal	Retail
Attraction	Grocery	Recreation Vehicle
Auto Dealership	Home	Safety Camera
Auto Rental	Hotel	School
Auto Repair	LiveLink Kiosk	Toll Booth
Bank	Live Search	Train Station
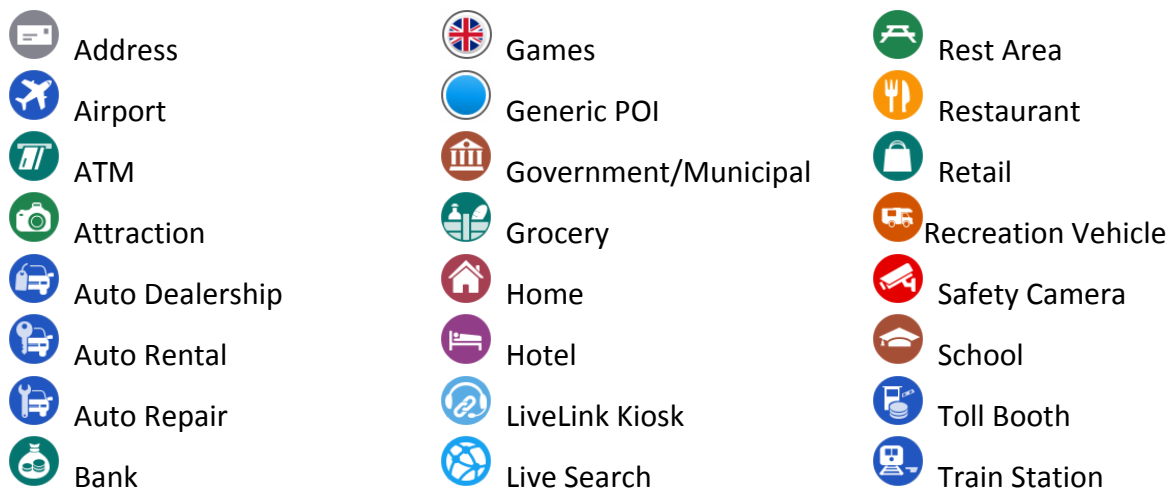
	Blank (white square)		Marina		Truck
	Border Crossing		Marker (generic)		Truck Stop
	Bus Stop		Medical		Web Result
	Cat Scale		Motorcycle Dealer		Weigh Station
	Commuter Rail		Park		Wikipedia
	Custom Place (generic)		Parking		Work
	Entertainment		Place of Worship		
	Favorite		Public Venue		
	Ferry		Recent		
	Fuel Stop		Recreation		

10.15 Printing or Copying a Map

The map in the PC*MILER map window can be printed or copied.

To print the map, either select *Print Map* from the File application menu or select the Map tab > Utilities group > *Print Map*. A standard Windows® setup dialog for printing will open.

To copy a map to the clipboard for pasting into another Windows program, select the Map tab > Utilities group > *Copy Map*.

PC*MILER provides a number of ways to customize routing, described in this chapter, including via point creation, dragging a route on the map, avoid and favor preference designations, truck and hazardous material restriction overrides, and geofence options.

> **IMPORTANT NOTE:** To back up your customized data, see section 11.7 in this chapter.

11.1 Picking Roads to Avoid or Favor

> **IMPORTANT:** The avoid/favor preferences you designate will affect routing only when **Use Custom Roads** is checked in the Route Options or Default Route Options dialog. Select the Routes tab > Route group > *Options* or Routes tab > General group > *Defaults*, then check "Use Custom Roads" in the General tab. This option is turned off by default. It does not affect via points or routes that have been dragged onto another road on the map.

You may wish to indicate road segments that PC*MILER should avoid or favor when generating a route. An avoided road segment is effectively treated as if it were closed **unless no other road can be used** for the route, **or if the total trip distance would be increased to the point of unacceptable inefficiency**. Favored road segments will be used **unless it is not practical to do so**. Preferences are saved in a file called "avoidfavor.db" in the Data\Base\Save folder of your installation.

Road segments to avoid or favor can be picked from the PC*MILER map window. Alternatively, you can use the map provided in the Avoid/Favor Manager dialog – see section 11.1.1. below for a description of this Manager. Here are the steps to create a road preference using either map:

1. First select the Tools tab > Avoids/Favors group > *Avoid Roads* or *Favor Roads.*

2. On the map, the cursor will now appear with a minus or plus sign. Click on the road segment to be avoided/favored (zoom in for a closer view if necessary).

> **NOTE:** To deselect *Avoid Roads* or *Favor Roads*, click the active tool again.

> **IMPORTANT:** The Avoid and Favor tools won't be available if there is no set selected, or if more than one set is selected – see section 11.1.4.

3. An Add Comments box will appear on the map. To add a comment that will be saved along with the avoid/favor, type it in then click **OK**. (A comment can also be added at a later time – see section 11.1.1 below.) If you do nothing, the dialog will close on its own as soon as another action is initiated.

> **NOTE:** If you don't want the Add Comments box to keep appearing, check "**Do not show this dialog again**" in the lower left corner. To activate it again, select the red File menu > *Application Settings* and check **Show Custom Road Comment Box**, then click **Save**.
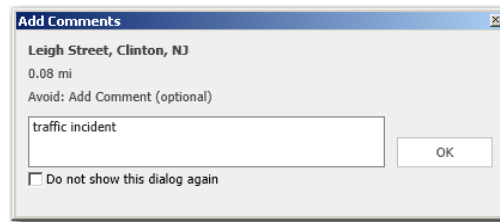
Add Comments Dialog

4. The selected road segment will be marked with red highlighting if it is to be avoided or green highlighting if it is to be favored. You may need to click on several adjoining segments to cover the entire area you wish to designate.
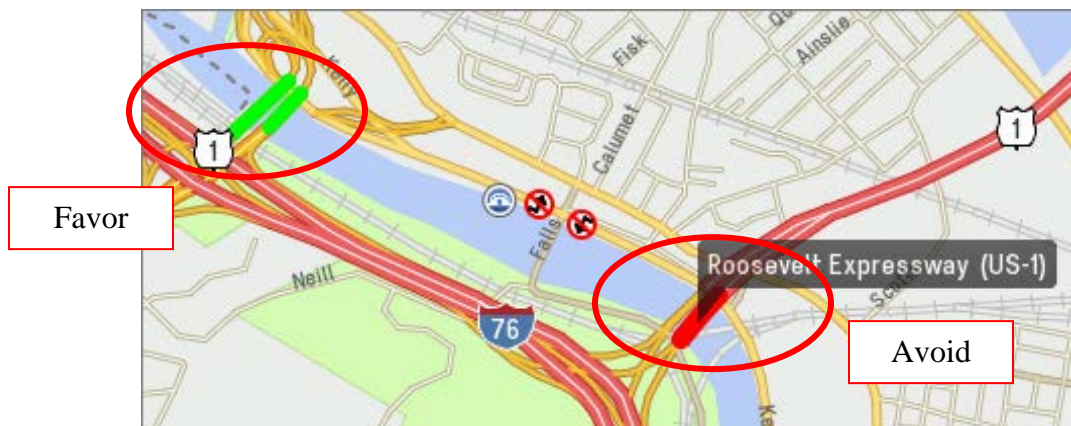
Avoid and Favor Designations on the Map – Philadelphia, PA

5. If you want to cancel an existing preference on the map, click on the road segment again with the *Avoid Roads* or *Favor Roads* tool selected.

> **NOTE on Favored Roads:** The PC*MILER long-distance "backbone" contains the roads that PC*MILER uses for its default Practical and Shortest routes over long distances.   If a favored road is not in the PC*MILER long-distance backbone, it will not be used for long-distance routes even if it is favored, unless an intermediate stop on that road is inserted into the route.

11.1.1 Using the Avoid/Favor Manager

All avoid/favor road preferences are saved in the Avoid/Favor Manager. To open this dialog, select the Tools tab > Avoids/Favors group > *Manager* or press **Alt**+**F2** on your keyboard.

From within this Manager dialog you can create, delete, edit or export existing avoid/favor preferences using the tabs, buttons and map provided.
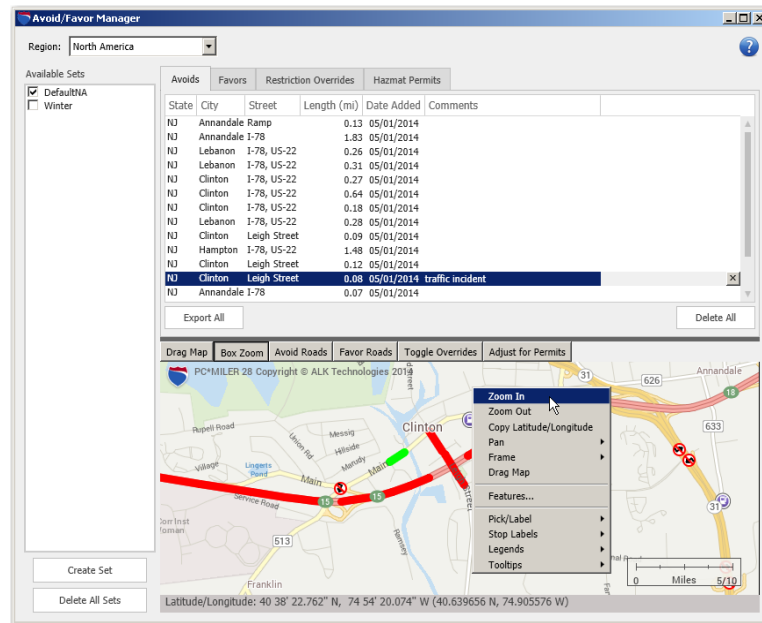
Avoid/Favor Manager

In the Avoid/Favor Manager, you will see a map that includes most but not all of the functionality that exists in the PC*MILER map window. It can be used just like the PC*MILER map to designate road preferences – click one of the avoid/favor buttons at the top (**Avoid Roads**, **Favor Roads**, **Toggle Overrides**, or **Adjust for Permits**), then click a road segment on the map to add it to the list in the corresponding tab. Clicking again on the designated road segment deletes the preference.

See section 11.1.2 below on overriding truck restricted roads, and section 12.3 on overriding hazardous material restrictions to accommodate hazmat permits.

The Avoid/Favor map can be navigated like the PC*MILER map using the translucent scroll bars at the map's edges, or the **Drag Map** and **Box Zoom** functionality via the buttons at the top. A right mouse menu provides additional options. To zoom your map view to a road segment listed in any tab of the Manager, first highlight it in the applicable tab and then double-click.

To **delete** an individual route segment from any tab in the Manager, highlight it and click the "X" on the far right. Click **Delete All** to delete the entire contents of the list in any tab.

To add or edit a comment, highlight a preference, then click it again and type directly in the **Comments** column.

To save your edits and close the Manager, simply click the "X" in the upper right corner to close the window.

11.1.2 Overriding Truck-Restricted Roads

NOTE: A road that is flagged as "truck-discouraged" (versus "truck-restricted") in the PC*MILER database cannot be overridden only by using the method described below. In addition to overriding the road, you must designate <u>all the road segments on it as favored</u> to make it fully truck-accessible (see section 11.1 above). To determine if a road is truck-discouraged, refer to the Road legend on the map for the color of the highlighting used to indicate a truck-discouraged road. (**Truck Restrictions** must be checked in the Map Features dialog to see truck-discouraged roads on the map.)

A truck-restricted road, as determined by the controlling governmental authority, prohibits trucks larger than a certain size and weight. To see these roads on the map, select the Map tab > Customize group > *Map Features* and turn on **Truck Restrictions**. In accordance with these regulations, PC*MILER does not use truck-restricted roads when routing vehicles larger or heavier than the restricted size or weight. However, you can override these restrictions using the Restriction Override feature described in this section, to determine the largest and heaviest vehicle that can be assigned to a route.

A truck-discouraged road is one that is open for local deliveries, but unsuitable for through trucks, as determined either by the controlling authority or by PC*MILER. The road may be discouraged because it is narrow, winding, not well paved, or for a variety of other reasons. PC*MILER avoids routing over truck-discouraged roads whenever possible, with the following exceptions: if the destination is located on such a road; if avoiding the truck-discouraged road will add a very significant amount of time and distance to a route; or if you have marked the road to be favored.

If you have questions about truck restrictions, please contact each jurisdiction directly.

NOTE Also: You can set PC*MILER to override truck restrictions by default in the Default Route Options dialog – check **Override Restrictions**.

> **IMPORTANT:** The road preferences you designate will affect routing only when **Use Custom Roads** is checked in the Route Options or Default Route Options dialog, General tab. Select the Routes tab > Route group > *Options* or General group > *Defaults*, then check "Use Custom Roads".

PC*MILER normally routes around all truck-restricted roads. However, some of these restrictions may be overridden, making the roads accessible. (This assumes that you have been granted permission to use these roads from the controlling authority, or that you are going to be using special equipment.)

To see truck-restricted roads highlighted on the map, turn on the **Truck Restrictions** layer in the Map Features dialog. A "Restricted" category will appear in the Road legend, showing the color of the highlighting on these roads.

Overriding restrictions on a road is similar to designating road segments to be avoided or favored – you can pick overrides from thePC*MILER map window or from the map in the **Restriction Overrides** tab of the Avoid/Favor Manager. Remember though, that a "truck-discouraged" road must be favored as well; and to override a road restriction you must click on each segment of the road until the whole road is redrawn. The color of the new highlighting will depend on which map style is selected. Comments can be added if needed. **Be sure to override all segments included on the route; otherwise the entire road will continue to be treated as inaccessible.**

To undo an override, click on it with the *Toggle Overrides* tool activated. The road will be restored to its original truck-restricted status. Alternatively, you can delete it from the **Restriction Overrides** tab of the Avoid/Favor Manager.
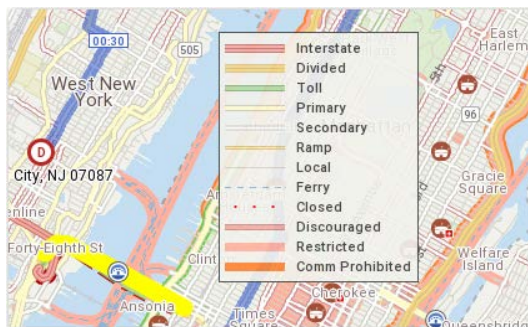
Truck Restriction Override on the Map

11.1.3 HazMat Permit Overrides

To change the status of roads that are restricted for hazardous materials, see section 12.3. To transport hazardous materials on these roads, the applicable permits must have been obtained.

11.1.4 Creating Sets of Custom Road Preferences

The Avoid/Favor Manager enables you to manage multiple sets of custom road preferences by allowing you to create and save sets of these preferences. You may find that custom sets are a useful tool for working with special equipment you operate, or for seasonal routing requirements. Sets can include road segment avoids/favors, and hazmat and truck restriction overrides.

NOTE: Many states and provinces in the north central part of the North American continent have seasonal weight limits that apply either to all commodities or to particular commodities (such as grain) at certain times of year (harvest season, winter, spring thaw, etc.).

In these areas, the carrier typically works with the shipper to adjust how much material is loaded into the truck in order to max out the limit for the season in question, rather than adjust the route traveled. So (for example) more grain would be loaded into the truck during harvest season or winter than during spring thaw. That is the only way to have a legal load when an origin or destination is on a road with a seasonal limit. In addition to legal considerations there are also practical physical considerations since many loading and unloading points in that part of the country are on unpaved surfaces, and to overload a truck during spring thaw risks the truck getting stuck during pickup or delivery.

In PC*MILER, we have coded the weight limit that applies to general commodities during most seasons of the year. For situations where the low-limit road is used as a through route rather than for pickup or delivery, the Sets feature described below can be used to create avoid/favor/restriction override "sets" for each season of the year for each commodity. Custom routing must be turned on in the Route Options dialog; then use the set that applies for a specific commodity at the appropriate season of the year.

REMEMBER: The road preferences you designate will affect routing only when **Use Custom Roads** is checked in the Route Options or Default Route Options dialog, General tab. Select the Routes tab > Route group > *Options* or General group > *Defaults*, then check "Use Custom Roads".

To create a set, do the following:

1. Select the Tools tab > Avoids/Favors group > *Manager* to open the Avoid/Favor Manager.

2. Click **Create Set** in the lower left corner.

3. At the prompt, enter a **Name** for the new set.
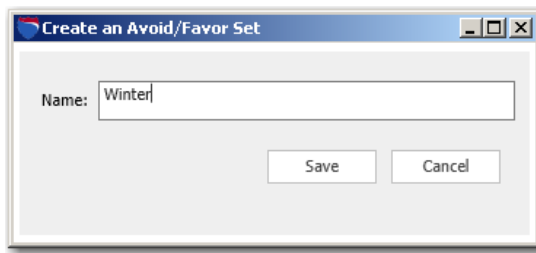
4. Click **Save**.

5. You will see the new set under **Available Sets** on the left. Uncheck the **DefaultNA** set and any other existing sets that are checked in this list.

NOTE: If more than one set is enabled in the Avoid/Favor Manager, the avoid/favor buttons in the Tools tab will be disabled.

6. Now you can begin to add road segments in any tab of the Manager. These avoid/favors will be specific to this set. The set you are adding them to must be the only set selected in the **Available Sets** list.

Note the following guidelines for creating new sets:

- Set names cannot be longer than 50 characters, and must be comprised of letters and/or numbers.
- Spaces are not allowed in the set name, but underscores ("_") are permitted.

To delete an individual set, place the cursor over the set name and click the "X" that appears on the right:
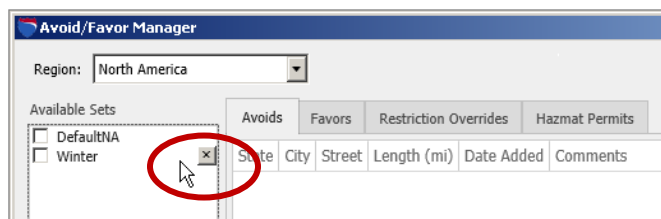
Deleting a Set

To delete all sets, click the **Delete All Sets** button in the lower left corner. The **Default NA** set cannot be deleted.

When more than one set is checked, all preferences included in the active sets will be visible on the map and listed in the corresponding tabs. However, only one set must be active when you want to add or delete preferences to a set. When multiple sets are active, the **Favor Roads**, **Avoid Roads**, **Toggle Overrides**, and **Adjust for Permit** buttons will be grayed out on the toolbar and in the right mouse map menu.

11.1.5 Exporting Custom Roads Data To a Report

To create a report in a text file (.txt) or Excel file (.csv) that contains all the preferences in the open tab of the Avoid/Favor Manager, click **Export All**. In the dialog that opens, name the file and choose a file format from the **Save as type** drop-down. Here are examples of the two types of file formats (the formatting in these files has been edited):

```
City, State     Street          Length (mi)     Date Added     Comment
Annandale, NJ   Ramp            0.1             05/01/2014
Annandale, NJ   I-78            1.8             05/01/2014
Lebanon, NJ     I-78, US-22     0.2             05/01/2014
Lebanon, NJ     I-78, US-22     0.3             05/01/2014
Clinton, NJ     I-78, US-22     0.2             05/01/2014
Clinton, NJ     I-78, US-22     0.6             05/01/2014
Clinton, NJ     I-78, US-22     0.1             05/01/2014
Lebanon, NJ     I-78, US-22     0.2             05/01/2014
Clinton, NJ     Leigh Street    0.0             05/01/2014
Hampton, NJ     I-78, US-22     1.4             05/01/2014
Clinton, NJ     Leigh Street    0.1             05/01/2014
Clinton, NJ     Leigh Street    0.0             05/01/2014     traffic incident
Annandale, NJ   I-78            0.0             05/01/2014
Annandale, NJ   Ramp            0.1             05/01/2014
Annandale, NJ   I-78            0.1             05/01/2014
```

Exported File of Avoided Roads in .TXT Format

	A	B	C	D	E
1	City, State	Street	Length (mi)	Date Added	Comment
2	Annandale, NJ	Ramp	0.1	5/1/2014	
3	Annandale, NJ	I-78	1.8	5/1/2014	
4	Lebanon, NJ	I-78, US-22	0.2	5/1/2014	
5	Lebanon, NJ	I-78, US-22	0.3	5/1/2014	
6	Clinton, NJ	I-78, US-22	0.2	5/1/2014	
7	Clinton, NJ	I-78, US-22	0.6	5/1/2014	
8	Clinton, NJ	I-78, US-22	0.1	5/1/2014	
9	Lebanon, NJ	I-78, US-22	0.2	5/1/2014	
10	Clinton, NJ	Leigh Street	0.9	5/1/2014	
11	Hampton, NJ	I-78, US-22	1.4	5/1/2014	
12	Clinton, NJ	Leigh Street	0.1	5/1/2014	
13	Clinton, NJ	Leigh Street	0.8	5/1/2014	traffic incident
14	Annandale, NJ	I-78	0.6	5/1/2014	
15	Annandale, NJ	Ramp	0.1	5/1/2014	
16	Annandale, NJ	I-78	0.1	5/1/2014	
17					

Exported File of Avoided Roads in .CVS Format

11.1.6 Avoiding or Favoring Whole Roads or States/Countries

> **REMEMBER:** The road preferences you designate will affect routing only when **Use Custom Roads** is checked in the Route Options or Default Route Options dialog, General tab. Select the Routes tab > Route group > *Options* or General group > *Defaults*, then check "Use Custom Roads".

In addition to the road preferences described above, whole roads and whole states can be selected to be avoided or favored for a route using the States/Roads Manager. If PC*MILER|Worldwide or DTOD data is installed and a region other than North America is selected, whole countries can be avoided/favored as well.

Avoid/Favor a State or Country:

1. Select the Tools tab > Avoids/Favors group > *States/Roads* to open the States/Roads Manager.

2. **VERY IMPORTANT:** Make sure "**Enable**" is checked in the upper left corner of the **State Restrictions** tab.

3. Select a state (or country) from the **States** pick list.

4. Click either **Avoid** or **Favor** to add to the desired list.

To **delete** a state (or country) from one of the lists, place the cursor over it and click the "X" that appears to the right. To clear either list, click **Clear All** at the bottom of the list.
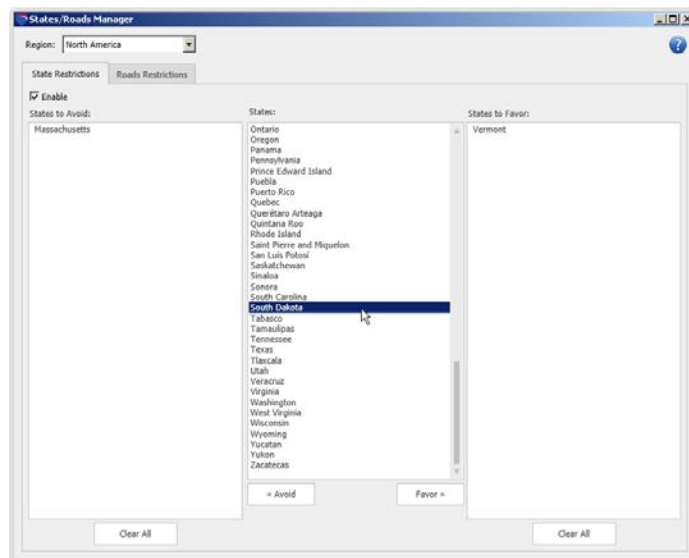
States/Roads Manager, State Restrictions Tab

Avoid/Favor a Whole Road:

NOTE for PC*MILER|Streets Users: You cannot designate a local street by name to be avoided or favored in the **Roads** tab; a local road can only be avoided/favored by designating it as such on the map.

1. Click the **Roads Restrictions** tab.

2. Select a state (or country) from the **State** drop-down.

3. Type the road name* in the **Road Name** field (e.g. **I 95**) without a state abbreviation.

4. Click **Avoid** or **Favor** under the road name.

To **delete** a road from one of the lists, place the cursor over it and click the "X" that appears to the right. To clear either list, click **Clear All**.

* To see how the name of a particular road appears in the PC*MILER database, you can zoom to that road on the map and place your cursor over the road without clicking. Some highway labels may include a common name along with the road number; for example, "**Pennsylvania Turnpike (I 276)**". In these cases, use the road number from within the parentheses ("**I 276**" in this example).
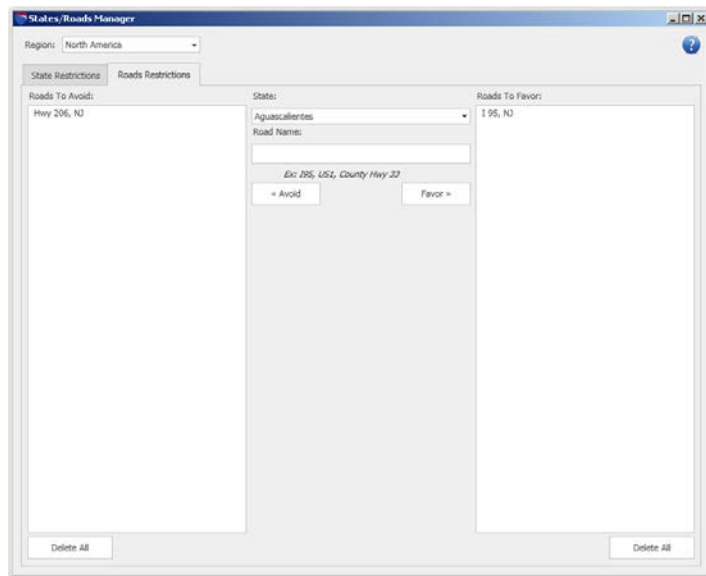
States/Roads Manager, Road Restrictions Tab

NOTE: You won't see any indication on the map that a whole road or whole state/country has been designated to be avoided or favored. To see the difference a designation makes on a route, first run the route with the **Enable** option unchecked, and duplicate that route; then go back and check this option and run

the duplicated route. You will see the difference between the two routes on the map and in reports. Another way to do this is to check and uncheck the **Use Custom Roads** option in the Route Options or Default Route Options dialog.

11.1.7 Converting Custom Road Files from a Previous Version

Saved custom road preferences from the previous version of PC*MILER can be imported using PC*MILER's file conversion utility as in the steps below.

1. Select the Tools tab > Avoids/Favors group > *Convert*.

2. Click **Import** and navigate to your existing custom road file(s) that are located in the **Data\Q1\Save** folder in your PC*MILER 28 installation folder. In that folder select the file **avoidfavors.db**.

3. After you select the file(s), click **Open** to start the import.

4. Once the import process is complete, check to make sure all the avoid/favors were imported successfully. Due to changes in the highway and street-level network database over time, some avoid/favors may not be successfully imported. Double-clicking on any listed road segment in the Conversion Utility dialog will zoom to that segment on the map where you can edit your preferences further if necessary.

IMPORTANT NOTE: Because of recent enhancements to the PC*MILER database that incorporate express, local, north/south and east/west lanes, etc., some of your avoid/favor/override designations from a previous version may need to be edited link-by-link to be sure the designated preference will operate in both directions.

In the Avoid/Favor Manager, open the **Avoid**, **Favor**, **Restriction Overrides** or **Haz Permits** tab to see a list of your preferences. Then zoom in to the maximum level (20) on each listed link on the map (you can double-click each link to do this) and make sure that lanes in both directions are marked with the desired designation.

11.2 Custom Vehicle Profiles

For those who make use of custom vehicle dimensions, PC*MILER provides the ability to create custom vehicle profiles that enable quick entry of vehicle or fleet attribute sets that you use often when routing. This time-saving feature lets you set up and save groups of vehicle dimension and cost/time settings for easy access in the future. Using custom vehicle profiles ensures that the defined settings are consistent for the particular vehicle type selected for a route.

To use custom vehicle profiles, select the Routes tab > Utilities group > *Vehicle Profile*. In the Vehicle Profiles Manager dialog that opens, you can select a profile to view, edit, or delete, or you can create a new custom profile. For North America, sample profiles are provided in the drop-down for full-size van, 26' straight truck, 28' double trailer, 40' straight truck, 48' semi-trailer, and 53' semi-trailer vehicles. The sample profiles can be edited, but not deleted.

NOTE: The "**Full-size van**" profile is intended for use with **vans, pickup trucks, SUVs, automobiles, etc. that are classed less than 9,000 lbs./4,082 kgs.** The automobile routing that is generated from this profile ignores all commercial truck restrictions, and if toll rates are calculated, will use toll rates that apply to small vehicles with 2-axles, which often differ from rates that apply to larger 2-axle vehicles.

NOTE For PC*MILER|Worldwide and DTOD Users: When creating, accessing, or editing a custom vehicle profile, you must perform the additional step of specifying a region. Each vehicle profile is applicable to only one region.

Vehicle Profiles Manager

To create a new custom profile, click **New.** A dialog will open that has two tabs – **Cost/Time** and **Vehicle Dimensions**. The editable fields in these tabs are the same ones found in the Route Options dialog. Enter a profile name and the desired edits in each tab and click **Save** to save your changes.

An unlimited number of custom profiles can be defined. The profiles you create will appear in the drop-down of available profiles in the Vehicle Dimensions tab of the Route Options and Default Route Options dialogs.

Once a profile is set up, it can be used globally (all new routes will use the selected profile in route calculations) or applied to each new route as appropriate:

- To apply a profile to all new routes, choose the Routes tab > General group > *Defaults*. In the Vehicle Dimensions tab, select the desired profile from the **Vehicle Profile** drop-down. Click **Save** to save this profile as the default.

- To apply a profile to a single route, choose the Routes tab > Route group > *Options*. In the Vehicle Dimensions tab, select the desired profile from the **Vehicle Profile** drop-down. Click **Save** when you are finished editing options for this route.

Options for Vehicle Profile –
Cost/Time Tab

Options for Vehicle Profile –
Vehicle Dimensions Tab

By default, custom profiles are not used. Sample vehicle profiles are provided in the **Vehicle Profile** drop-down as follows:

- **North America:** Full-size van, 26' straight truck, 28' double trailer, 40' straight truck, 48' semitrailer, 53' semitrailer
- **Europe:** 12m straight truck, 16.5m articulated, 18.75m road train, Full-size van
- **All Other Regions:** none

11.3 Custom Route Profiles

In addition to custom vehicle profiles, you can create and save route profiles that include custom settings available in the Route Options dialog. This feature is a time-saver if there are combinations of route option settings that you need to use frequently but do not want to set as defaults.

To create and use a new route profile, follow these steps:

1. Select the Routes tab > Utilities > *Route Profiles.*

2. In the Route Profiles Manager, click **New**.
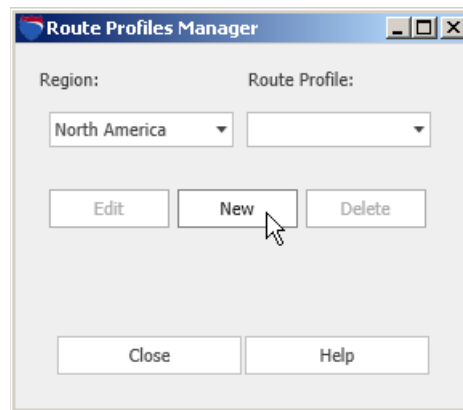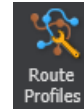
Route Profiles Manager

3. In the Route Profiles dialog, you will see the same options as in the Route Options dialog. Type a name for the new profile under **Route Profile Name**.

4. Set the route options as you want them for this profile.

5. Click **Save** to save the profile and close the Route Profiles dialog. A standard Windows Save dialog lets you save the new .DAT file in the **Data\Base\Save** folder in the PCMILER 29 installation. This location cannot be changed.

6. Click **Close** to close the Route Profiles Manager.

7. Now the new profile is available for every route you run – click the gear button (   ) in a route window and choose *Options*, then select it from the **Route Profile** drop-down at the top of the Route Options dialog.

8. To edit or delete a profile, open the Route Profiles Manager as in Step 1, select a profile from the drop-down and then click **Edit** or **Delete**.

NOTE: If you select and save a Route Profile in the Route Options dialog to be applied to the currently open route, and then edit that Route Profile, you will need to open a new route window and select the Route Profile again for the edit you made to take effect.

11.4 Using Via Points For Route Customization

PC*MILER gives users the ability to enter and save up to 12 via points between an origin and destination to guide a route along user-preferred roads.

The via points you create can be designated as stops or waypoints. The "waypoint" designation means that these locations were added only to guide the route along desired roads. Waypoints are treated like stops on the map (routes travel through the centroid of a waypoint town or city), but they don't appear in the driving instructions in the Driver's Report and are marked as a "Via" in the Detailed route Report. Waypoints appear on the stop list as circles with a gray border. When using RouteSync and CoPilot, the navigation system will tell drivers to stop at a stop or to drive through a waypoint

Via points are saved in a set and the option to enter them will be offered whenever the route segment for which they were created is included on a trip. For example, vias for a trip leg between Baltimore and Chicago can be entered with a click of the mouse whenever Baltimore followed by Chicago is entered for a route.

To create a via point set, follow these steps either before or after running a route:

1. In a new route window, enter at least two stops.

2. **Highlight the stop that you wish to designate as the origin.** This need not be the origin of the route if multiple stops are entered. You will be creating via points between this highlighted stop and the next destination on the stop list.

3. Select the Routes tab > Route group > *Create Via Point Set* to open the Via Point Set Manager.

Via Point Set Manager

4. Under **Via Point Location**, type a PC*MILER location (city/state, postal code, etc.) in the top field and, optionally, a street address underneath.

5. Under **Via Point Type**, select whether the point you entered will be a **Stop** or a **Waypoint**.

6. Press **Enter** or click **Add Point.** PC*MILER will confirm that the location exists in the database – if a pick list appears, make a selection and click **OK**.

7. Click **Add Point** again to add this location to the **Via Points in Set** list.

8. Under **Via Point Set Application**, select whether the new set will be applied only when the route travels from **Origin to Destination**, from **Destination to Origin**, or in **Both Directions**.

9. Also under **Via Point Set Application**, the radius around the origin and/or destination can be edited (default is 10 miles). This is the radius within which an origin and a destination point must be located to trigger the via points option for this route segment. The radius is defined from the city center or postal code center.

10. Steps 4-9 can be repeated to add up to 11 additional via points to the set.

11. When finished adding points, click **Save Set** to save the new set then click **Close** to close the dialog.

12. In the route window, you will see a line inserted into the stop list under the origin for the via point set. Click the **Add Via Set** button on this line to add the points to the stop list. If you decide not to use the via points for this route, ignore this button and the via points won't be used.
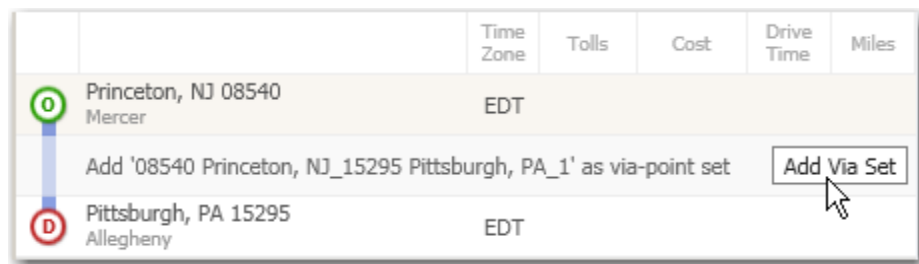
"Add Via Set" Button in the Route Window

13. Click **Run** to run the route. If you activated the via points in Step 11, the route will travel on the preferred roads through the via points.

To Edit a Set:

To edit a set at any time, select the Routes tab > Utilities group > *Manage Via Point Sets*. Then select the set you want to edit from the drop-down of sets, make your changes, and click **Save Set**.

Editing options include:

- Rename the set – click **Edit Set Name**, enter a new name, then click **Rename**.
- Delete the set – click **Delete Set** in the upper right corner of the dialog. **This action cannot be undone.**
- Change the direction to which the set will be applied.
- Add more stops or waypoints as described above.
- Change the via point type – select a point on the list then click **Stop** or **Waypoint**.
- Delete one or more via points – select a point on the list and click **Delete Point**.
- Change the order of points in the set – select a point on the list and click **Move Up** or **Move Down**.

11.5 Dragging a Route on the Map

Once a trip has been generated, any point along the generated route on the map can be dragged onto another road in order to re-route the trip. To drag a route, do the following:

1. Select the Routes tab > Utilities group > *Drag Route*.

2. In the PC*MILER map window, click on the route and hold down the cursor, then drag to the desired location and let go.

3. This action will create a waypoint at the location to which the route was dragged, indicated by a gray circle icon. The trip will be re-routed to accommodate the new waypoint.

Original Route
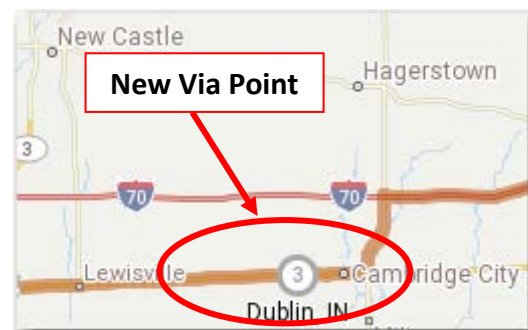
New Route Created by Dragging

11.6 Geofence Options

PC*MILER now provides tools that enable you to create, modify and manage geofences. A geofence defines a geographic area that will either generate an alert when a route enters it, or will be avoided by the route. Its use has many different applications, such as:

- Drawing zones around a warehouse to identify delivery/billing zones
- Alerting dispatchers when a vehicle enters an area that it wasn't authorized to enter – for example, leaving the country
- Avoiding or warning about steep grades, mountain passes susceptible to snow closures, tunnels requiring escorts, etc.
- Avoiding or warning if an asset has crossed into a high crime or high accident area
- Avoiding or warning about areas where bad weather is expected or has occurred: heavy snowfalls, floods, hurricane evacuation areas, etc.

The geofence tools in PC*MILER allow users to:

- Create and modify the characteristics of a geofence:
  - Define its size and shape as a circle, rectangle, or a user-defined polygon
  - Give the geofence a unique name (with the exact text that will appear in report warnings)
  - Delete the geofence

- Identify points and roads that fall within the boundaries of a geofence
- Group geofences into sets and assign and modify the characteristics of a set:
  - Create and uniquely name a set with the name that will appear in report warnings
  - Define the border color, border width and fill color of the geofences in the set
  - Define the set properties: off (not active), warning only, or avoid and warn
  - Delete the set

11.6.1 Creating a Geofence

NOTE: There is no limit to the number of individual geofences that can be created and added to a geofence set, or to the number of sets that can be created.

TIP: A geofence that covers a very large area (for example, a whole state) will draw very slowly on the map and will affect other map functions that involve a map redraw. Whole states and whole roads can be avoided or favored using the States/Roads Manager – see section 11.1.6.

NOTE: To see geofences on the PC*MILER map or on the map in the Geofence Manager, "Geofences" must be checked in the Map Features dialog (Map tab > Customize group > *Map Features*). This map feature is enabled by default.

Follow the steps below to create an individual geofence:

1. Select Tools tab > Geofences group > *Geofence Options* > *Manage* to open the Geofence Manager.
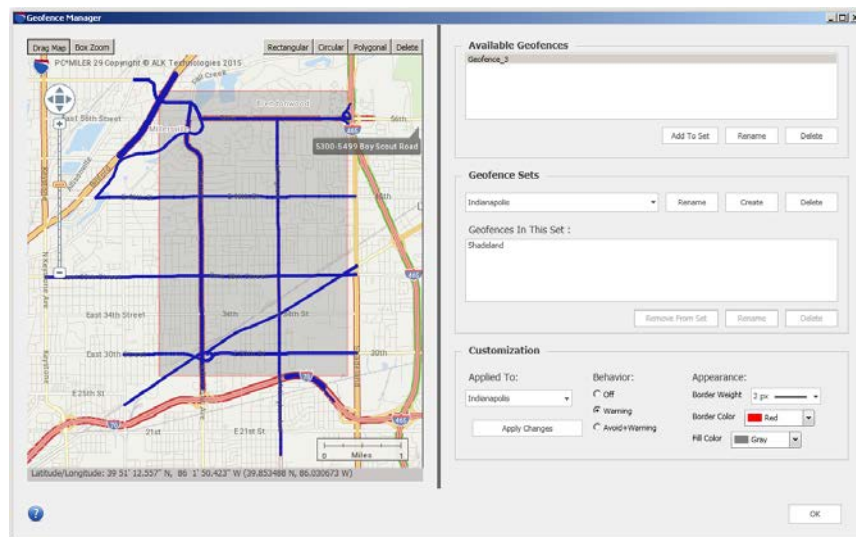
GeofenceManager

2. In this window, use the zoom tools and **Drag Map** button to zoom into the target area on the map.

3. Click the **Rectangular**, **Circular**, or **Polygonal** button at the top of the map. Depending on which shape you chose, the cursor will change to one of the following:

   - When drawing a rectangle: ⌐⌐
   - When drawing a circle: ↻
   - When drawing a user-defined polygon: ▮

   If using the circle or rectangle shape, drag the cursor over the desired area. If using the polygon tool, click all the points of the desired perimeter and finish by clicking on the first point again to close the polygon. If you are not satisfied with the area that is covered, delete the geofence in the **Available Geofences** list to the right and start over.

NOTE: Note that alternatively you could use the map and geofence tools in the PC*MILER application window to initially create a geofence – open the Tools tab > Geofences group > *Create Geofence* and create a geofence on the map as in Steps 2-3.

4. In the **Available Geofences** list, you will see a generic name assigned ("Geofence_#") to the geofence you just created on the map. (If more than one geofence is on the list, they will be listed alphabetically, e.g. Geofence_1, Geofence_10, Geofence_2, etc.) To assign a unique name to this geofence (for example, a geographic location):

   a. Click on the default name.

   b. Click **Rename** below the list.

   c. In the prompt that pops up, type a new name.
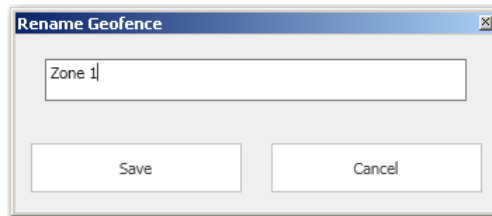
   d. Click **Save**.

5. A geofence must belong to a set before a warning status and display properties can be assigned to it:

   a. Click **Create** under **Geofence Sets**.

   b. Type a name for the new set.
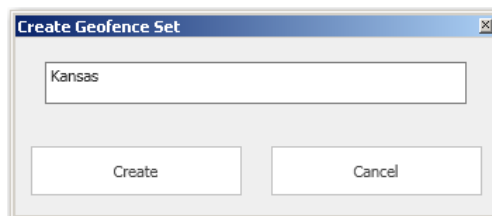
   c. Click **Create**. The set name will appear as the selected set in the **Geofence Sets** list.

   d. Go back to the **Available Geofences** list, highlight the geofence(s) you want to add and click **Add To Set**.

6. Click **OK** to close the Geofence Manager. The geofence(s) you created will be saved in the PC*MILER installation folder.

TIP: To zoom to an existing geofence or set on the map in the Manager, double-click the geofence name under **Available Geofences** or the set name under **Geofence Sets**.

11.6.2 Customizing Geofence Sets

The properties of each geofence set can be customized in the Geofence Manager. All geofences in the set will have the same appearance and activity status. Individual geofences cannot be customized.

Customizing the Appearance of Geofences in a Set:
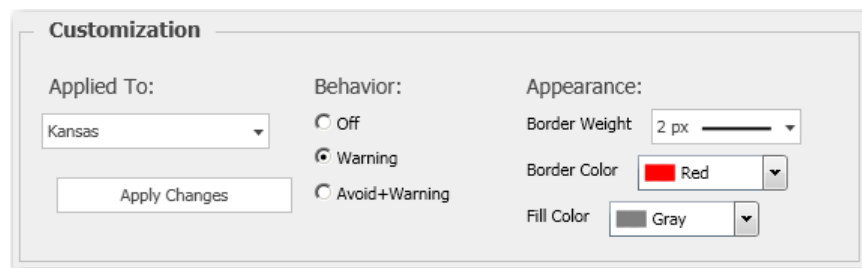
1. Under **Customization**, select a set from the **Applied To** drop-down.

2. To edit the **Fill Color** or **Border Color**, choose a new color from the drop-down.

3. Use the **Border Weight** drop-down to select a new width for the border.

4. Click **Apply Changes** to see these atributes appear on the map.

Designating the Behavior of Geofences in a Set:

1. Under **Customization**, select one of these **Behavior** options:

    Off: Geofences are not active. They do not affect the Detailed Route Report and are not visible on the map.

    Warning Only: Geofences are visible on the map, and a warning will appear in the Detailed Route Report at the points where the route begins to travel on a road segment that is part of a geofenced area. The warning will include the road name, geofence set name, and geofence name, for example:

    Warning * US 69 *: Montana Geofences: ButteMT

    Avoid + Warning: Geofences are visible on the map. The route will avoid road segments within the geofenced area if "Use Custom Routing" is checked in the Route Options or Default Route Options dialog. A warning will appear in the Detailed Route Report in cases where the route has to enter the geofence (for example, if the destination is within the geofenced area).

2. Click **Apply Changes** to save your selection.

Detailed Route Report with Geofence Warning

Renaming and Deleting Geofences and Sets:

To delete a geofence:

To permanently delete a geofence, highlight it in either the **Geofences In This Set** list or the **Available Geofences** list and click **Delete** below the list.

To delete an individual geofence directly from the map:

1. On the map, zoom to the location of the geofence you want to delete.

2. Click the **Delete** button at the top of the map. In Delete mode, your cursor will change to look like this: ▊ To exit from delete mode, select *Delete* again.

3. Click the geofence(s) you want to delete.

4. To exit from Delete mode, select **Delete** again.

To delete a set:

Under **Geofence Sets**, select the set you want to delete from the drop-down, then click **Delete** to the right.

To rename a set:

Under **Geofence Sets**, select the set you want to rename from the drop-down, click **Rename** to the right, type a new name in the prompt that appears, and click **Save**.

To edit a set:

To remove a geofence from a set and reassign it to the **Available Geofences** list, highlight it in the **Geofences In This Set** list and click **Remove From Set**.

11.6.3 Generating a Geofence Report

To create a report that shows all road segments included within the perimeter of a geofence, do the following:

1. Select the Tools tab > Geofences group > *Convert* > *Export Geofences*.

2. In the Save dialog, select a file type (*.txt or *.csv), enter a file name, and select a target location where the report will be saved.

To open the report, navigate to the folder where it was saved. If the report was saved as a *.txt file, it will open in Notepad. If it was saved as a *.csv file, it will open in Excel.

This report includes the following data: the name of the geofence, the set that the geofence belongs to, the corresponding road segments included in the geofence, and the date the geofence was added. A sample *.txt report for two geofences is shown below.


```
New York, NY    NYC   03/20/2012
Circle     (40.758700N, 74.432373W)    (41.225150N, 73.814392W)
New York, NY     Springfield     03/20/2012
Circle     (41.549372N, 74.099595W)    (43.090339N, 72.015344W)

NY-173.08  Tuxedo Park, NY 03/20/2012 NYC
I-87 (New York State Thruway)    5.40  Sloatsburg, NY  03/20/2012
       NYC
Ramp 0.22  Sloatsburg, NY   03/20/2012 NYC
Ramp 0.04  Sloatsburg, NY   03/20/2012 NYC
Ramp 0.07  Sloatsburg, NY   03/20/2012 NYC
Ramp 0.04  Sloatsburg, NY   03/20/2012 NYC
Ramp 0.10  Sloatsburg, NY   03/20/2012 NYC
Route 72 (Sterling Mine Road)    0.17  Sloatsburg, NY   03/20/2012
       NYC
Ramp 0.10  Sloatsburg, NY   03/20/2012 NYC
Ramp 0.15  Sloatsburg, NY   03/20/2012 NYC
Greenwood Lake Turnpike (Route 511)   2.71  West Milford, NJ
       03/20/2012 NYC
Ramp 0.09  Sloatsburg, NY   03/20/2012 NYC
Ramp 0.26  Sloatsburg, NY   03/20/2012 NYC
Route 72 (Sterling Mine Road)    1.35  Sloatsburg, NY   03/20/2012
       NYC
Route 72 (Eagle Valley Road)    0.05  Sloatsburg, NY   03/20/2012
       NYC
Route 72 (Sterling Mine Road)    1.62  Eagle Val
       03/20/2012 NYC
Mill Pond Road   1.03  Ringwood, NJ    03/20/201
Sloatsburg Road 0.20  Ringwood, NJ    03/20/201
NY-170.51  Sloatsburg, NY   03/20/2012 NYC
Ramp 0.17  Sloatsburg, NY   03/20/2012 NYC
I-87 (New York State Thruway)    0.27  Sloatsburg, NY   03/20/2012
       NYC
```

List of road segments in both geofences begins here.

Geofence Location, Set Name, Date Created, Shape, and Defining Lat/Longs

Each road segment listing includes Segment, Length, Nearest Town, Date and Set Name

*Geofence Report in *.txt Format*

11.6.4 Geofence Behavior on the Map

By default, geofences that are created will initially appear on the map with light gray fill and a thin red border. Fill color and border width can be edited as described in section 11.6.2.

When a geofence is inactive (not assigned to a set, but still listed under "Availabe Geofences"), it will no longer be visible on the map though it is still saved.

There are also two settings in the Map Features dialog that affect the geofence display on the map: if **Avoids & Favors** is unchecked, the blue highlighting that designates road segments inside each geofence will be hidden; and if **Geofences** is unchecked, the geofence shapes will be hidden but the blue highlighting on affected road segments will still be visible. All geofences are affected by these settings.

11.6.5 Identify Points Within a Geofence Boundary

To determine if particular points lie within a geofence boundary, follow the steps below.

1. Select the Tools tab > Geofences group > G*eofence Options > Identify*.

2. Enter a location in the **City** field, with or without an **Address**. Any PC*MILER location is acceptable, including lat/long points and custom place names. If you enter a city name without an address, PC*MILER will use the city center of that town.
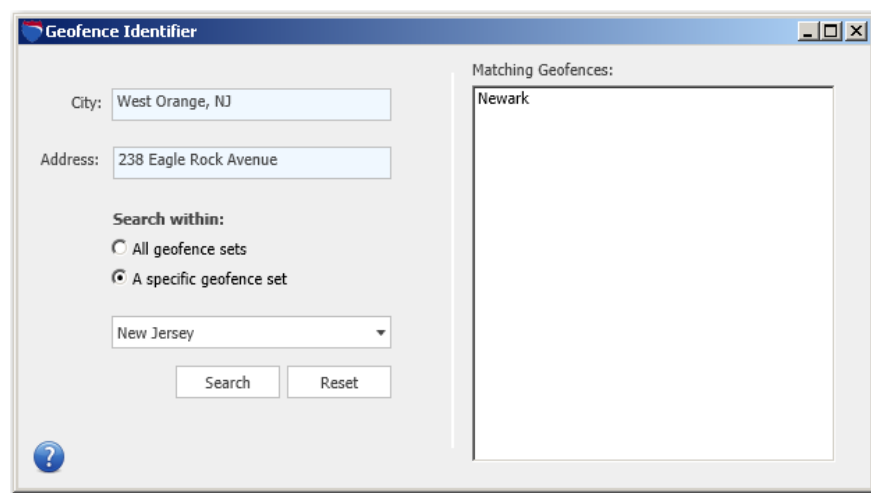
Geofence Identifier

3. Under **Search Within**, select to search **All geofence sets** for the location, or within **A specific geofence set**. Choose a set from the drop-down menu if you want to search within a specific set.

4. Click **Search**. All geofences that include the location will be listed under **Matching Geofences**. If the point is not within the boundary of any geofence, a *"No matches found"* message will appear.

5. Click **Reset** to clear the search before entering another location.

11.6.6 Using the Geofences Conversion Utility

If you created and saved geofences in the previous version of PC*MILER, you can easily import those files into Version 29 using the Geofences Conversion Utility. To do this, follow the steps below.

1. Select the Tools tab > Geofences group > *Convert > Import Geofences*.

2. In the window that opens, navigate to the PC*MILER 28 installation folder (usually C:\ALK Technologies\PCMILER28).   In that folder, navigate to NA\Q1\Save\geofences, then select the geofence files (**flattened_gf.dat** and **flattened_af.dat**) and click **Open**.

3. You will see the saved geofence files being copied into Version 29.

4. When the process is complete, close the dialog. The geofences should now be accessible in Version 29.

11.7 Backing Up Your Custom Files (Better Safe Than Sorry)

It's always strongly suggested to back up important files frequently to a different location in case the unexpected occurs. The following customized data in PC*MILER can be backed up:

- Custom places
- Custom roads
- Geofences
- Default routing options
- Default road speeds

To create a backup, copy your files into a separate folder, preferably one that is located on a second computer or device. Your custom data files can be found in a "Save" folder in the PC*MILER installation. The location of the Save folder in different types of PC*MILER installations is shown below:

- **PC*MILER 29 - NA - US/Canada Base**
    - C:\ALK Technologies\PCMILER29\Data\Base\save

- **PC*MILER 29 - NA - US/Canada Energy**
    - C:\ALK Technologies\PCMILER29\Data\NA_Energy\save

- **PC*MILER 29 - Highway WorldWide**
    - C:\ALK Technologies\PCMILER29\Data\WW\save

- **PC*MILER 29 - Streets Africa/Asia/Middle East/Oceania/South America**
    - C:\ALK Technologies\PCMILER29\Data\'xx'\save

If the separate PC*MILER|HazMat data add-on module is installed, routing can be generated in North America, Europe and Oceania for various types of hazardous materials and dangerous goods using any PC*MILER route type. To use a hazardous materials routing option, click the gear button in a route window ( ) and select *Options* or select the Routes tab > Route group > *Options,* then click the **HazMat** tab.
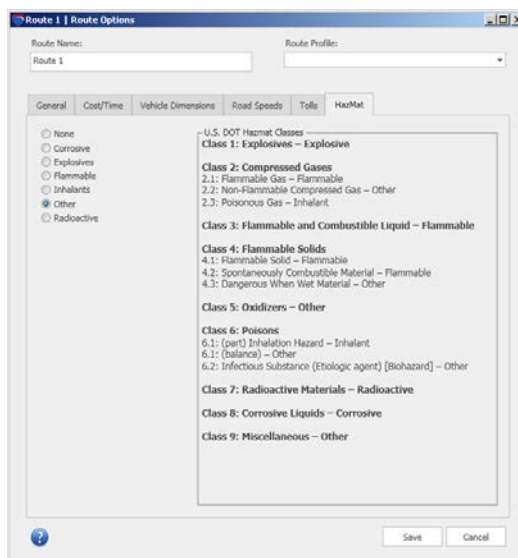
Route Options Dialog, HazMat Tab (North America Region)

Hazardous material routing options for North America include: **Other**, **Corrosive**, **Explosives**, **Flammable**, **Inhalants**, and **Radioactive**. When Europe or Oceania is the selected region, the options are: **Other**, **Explosives**, **Flammable**, and **Harmful to Water** (with additional tunnel restrictions categories in Europe – see Table 2 below).

Tables 1 and 2 below show how each PC*MILER hazmat route type handles each hazmat road category. **Table 3** shows U.S. DOT Hazmat classes and the corresponding PC*MILER route type.

NOTE: The "Other" option should be used for any hazardous material that presents a danger during transportation and is not corrosive, explosive, flammable, inhalant, or radioactive. Common examples include: oxidizers (such as compressed oxygen tanks), combustible liquids (such as diesel fuel), and poisons (such as pesticides).

TABLE 1: PC*MILER Hazardous Material Route Types and Road Categories

favor = routing will prefer these segments

no change = routing will not be altered in any way

avoid = routing will go around these segments whenever possible

discourage = a lesser degree of avoidance, used when a state or road authority allows hazmat only at certain times of day, with prior notification, by permit, or in limited quantities, and for tunnels not otherwise classified

#	Hazmat Routing Category	Other	Corrosive	Explosives	Flammable	Inhalants	Radioactive	Detailed Route Report	Hazmat Map Legend
1	Alternate	favor	favor	favor	favor	favor	favor		Desig/Pref/Alt
2	Preferred	favor	favor	favor	favor	favor	favor		Desig/Pref/Alt
3	Designated	favor	favor	favor	favor	favor	favor		Desig/Pref/Alt
4	Prohibited	avoid	avoid	avoid	avoid	avoid	avoid	Prohibited	Prohibited
5	Restricted	discourage	discourage	discourage	discourage	discourage	discourage	Restricted	Restricted
6	Harmful to Water Prohibited	no change	no change	no change	no change	no change	no change	Harmful to Water Prohib.	Some Cmds Prohib
7	Explosive Designated	no change	no change	favor	no change	no change	no change		Desig Expl
8	Inhalant Designated	no change	no change	no change	no change	favor	no change		Desig Inhal
9	Explosive & Inhalant Designated	no change	no change	favor	no change	favor	no change		Desig/Pref/Alt
10	Tunnel	discourage	discourage	discourage	discourage	discourage	discourage	Tunnel	Restricted
11	Tunnel & Alternate	favor	favor	favor	favor	favor	favor		Desig/Pref/Alt
12	Tunnel & Preferred	favor	favor	favor	favor	favor	favor		Desig/Pref/Alt
13	Tunnel & Designated	favor	favor	favor	favor	favor	favor		Desig/Pref/Alt
14	Tunnel & Prohibited	avoid	avoid	avoid	avoid	avoid	avoid	Prohibited Tunnel	Prohibited
15	Tunnel & Restricted	discourage	discourage	avoid	avoid	avoid	avoid	Restricted Tunnel	Restricted
16	Tunnel & Large Explosive, Inhalant, and Flammable Prohibited	no change	no change	no change	no change	no change	no change	Many Cmds Prohib.	Some Cmds Prohib
17	Tunnel & Large Explosive and Inhalant Prohibited	no change	no change	no change	no change	no change	no change	Expl. & Inhal. Prohib.	Some Cmds Prohib
18	Caustic, Explosive, Flammable & Radioactive Prohibited	no change	avoid	avoid	avoid	no change	avoid	Many Cmds Prohib.	Some Cmds Prohib
19	Explosive Restricted	no change	no change	discourage	no change	no change	no change	Explosive Restricted	Restricted
20	Tunnel & Very Large Explosive Prohibited	no change	no change	no change	no change	no change	no change	Explosive Restricted	Some Cmds Prohib
21	Explosive & Flammable Prohibited	no change	no change	avoid	avoid	no change	no change	Expl. & Flam. Prohib.	Some Cmds Prohib
22	Radioactive Preferred	no change	no change	no change	no change	no change	favor		Desig Rad

(continued on next page)

#	Hazmat Routing Category	Other	Corrosive	Explosives	Flammable	Inhalants	Radioactive	Detailed Route Report	Hazmat Map Legend
23	Radioactive Designated	no change	no change	no change	no change	no change	favor		Desig Rad
24	Radioactive Prohibited, Explosive Restricted	no change	no change	discourage	no change	no change	avoid	Rad. Prohib., Expl. Restr.	Some Cmds Prohib
25	Radioactive Prohibited	no change	no change	no change	no change	no change	avoid	Radioactive Prohibited	Some Cmds Prohib
26	Escort Needed	no change	no change	no change	no change	no change	no change	Escort	None
27	Explosive and Flammable & Harmful to Water Prohibited	no change	no change	avoid	avoid	no change	no change	Many Cmds Prohib.	Some Cmds Prohib
28	Explosives, Inhalant & Radioactive Designated	no change	no change	favor	no change	favor	favor		Desig/Pref/Alt
29	Radioactive & Explosive Designated	no change	no change	favor	no change	no change	favor		Desig/Pref/Alt
30	Radioactive & Explosive Prohibited	no change	no change	avoid	no change	no change	avoid	Rad. & Expl. Prohib.	Some Cmds Prohib
31	Radioactive & Explosive	no change	no change	discourage	no change	no change	discourage	Rad. & Expl. Restr.	Restricted

NOTE: U.S. hazardous material routing restriction/designation information taken from *The National Hazardous Materials Route Registry* provided by the Federal Motor Carrier Safety Administration (FMCSA); and various other state and federal sources. Canadian hazmat/dangerous goods routing data derived from government and municipal sources in each Province and Territory, and includes restrictions for major Canadian bridges and tunnels.

TABLE 2: PC*MILER HazMat Route Types and Road Categories – EU Harmful to Water and EU Tunnels

(PC*MILER|Worldwide or DTOD data must be installed) For PC*MILER|Worldwide and DTOD users, the hazmat categories below are used in the Europe and Oceania regions.

#	Hazmat Routing Category	EU Harmful to Water	EU Tunnel B, C, D, E	EU Tunnel C, D, E	EU Tunnel D, E	EU Tunnel E
0	None	no change	no change	no change	no change	no change
1	Alternate	no change	no change	no change	no change	no change
2	Preferred	no change	no change	no change	no change	no change
3	Designated	no change	no change	no change	no change	no change
4	Prohibited	avoid	no change	no change	no change	no change
5	Restricted	no change	no change	no change	no change	no change
6	Harmful to Water Prohibited	avoid	no change	no change	no change	no change
7	Explosive Designated	no change	no change	no change	no change	no change
8	Inhalant Designated	no change	no change	no change	no change	no change
9	Explosive & Inhalant Designated	no change	no change	no change	no change	no change
10	Tunnel	no change	no change	no change	no change	no change
11	Tunnel & Alternate	no change	no change	no change	no change	no change
12	Tunnel & Preferred	no change	no change	no change	no change	no change
13	Tunnel & Designated	no change	no change	no change	no change	no change
14	Tunnel & Prohibited	no change	avoid	avoid	avoid	avoid
15	Tunnel & Restricted	no change	no change	no change	no change	no change
16	Tunnel & Large Explosive, Inhalant, and Flammable Prohibited	no change	avoid	avoid	avoid	no change
17	Tunnel & Large Explosive and Inhalant Prohibited	no change	avoid	avoid	no change	no change
18	Caustic, Explosive, Flammable & Radioactive Prohibited	no change	no change	no change	no change	no change
19	Explosive Restricted	no change	no change	no change	no change	no change
20	Tunnel & Very Large Explosive Prohibited	no change	avoid	no change	no change	no change
21	Explosive & Flammable Prohibited	no change	no change	no change	no change	no change
22	Radioactive Preferred	no change	no change	no change	no change	no change
23	Radioactive Designated	no change	no change	no change	no change	no change
24	Radioactive Prohibited, Explosive Restricted	no change	no change	no change	no change	no change
25	Radioactive Prohibited	no change	no change	no change	no change	no change
26	Escort Needed	no change	no change	no change	no change	no change
27	Explosive and Flammable & Harmful to Water Prohibited	avoid	no change	no change	no change	no change
28	Explosives, Inhalant & Radioactive Designated	no change	no change	no change	no change	no change
29	Radioactive & Explosive Designated	no change	no change	no change	no change	no change
30	Radioactive & Explosive Prohibited	no change	no change	no change	no change	no change
31	Radioactive & Explosive	no change	no change	no change	no change	no change

The table below shows how the wording used for PC*MILER hazmat routing options, which is derived from industry-standard placarded descriptions of hazardous materials, corresponds to the U.S. Department of Transportation Hazmat classifications. See sections 12.1 and 12.2 below on how to use this table.

U.S. DOT Hazmat Classes (corresponding PC*MILER routing options are **bolded**):

Class 1: Explosives – **Explosive**

Class 2: Compressed Gases
> 2.1: Flammable Gas – **Flammable**
> 2.2: Non-Flammable Compressed Gas – **Other**
> 2.3: Poisonous Gas – **Inhalant**

Class 3: Flammable and Combustible Liquid – **Flammable**

Class 4: Flammable Solids
> 4.1: Flammable Solid – **Flammable**
> 4.2: Spontaneously Combustible Material – **Flammable**
> 4.3: Dangerous When Wet Material – **Other**

Class 5: Oxidizers – **Other**

Class 6: Poisons
> 6.1: (part) Inhalation Hazard – **Inhalant**
> 6.1: (balance) – **Other**
> 6.2: Infectious Substance (Etiologic agent) ["Biohazard"] – **Other**

Class 7: Radioactive Materials – **Radioactive**

Class 8: Corrosive Liquids – **Corrosive ("Caustic" in PC*MILER 22 and earlier)**

Class 9: Miscellaneous – **Other**

12.1 Determining Which Route Type to Use

> **NOTE:** Hazmat regulations for a particular tunnel on a route should be checked if there is any doubt about which materials are permitted, as regulations may change over time and might not be included in the version of the PC*MILER database that you are currently using.

The shipper of hazardous materials is legally responsible for determining the U.S. DOT Hazmat Class for their shipment and communicating that class to the carrier in their shipping papers.

To determine the U.S. DOT Hazmat Class, go to the online 49 CFR 172.101 at www.ecfr.gov. Once the Class is identified for a shipment, use Table 2 above to determine which route type should be used when generating a PC*MILER route for that shipment.

For example, on the government web site, hydrogen is classified as a Flammable Gas (DOT class 2.1), while oxygen, nitrogen, carbon dioxide, and argon are Non-Flammable Compressed Gases (DOT class 2.2).

Using Table 2 above, DOT class 2.1 corresponds to the PC*MILER Hazmat route type "Flammable", while DOT class 2.2 corresponds to the PC*MILER Hazmat route type "Other".

12.2 Routing Multiple Hazmat Classes

For routing a single shipment containing multiple hazmat classes, the following procedures are suggested:

1. First, determine the weight of each commodity and check the U.S. DOT (PHMSA) rule to see if that combination is permissible and if so, which placard(s) are to be used.

2. Then, for each placard, look up the PC*MILER|Hazmat routing options in the table above.
   a. If all the placards correspond to one routing option, use that option.
   b. If the placards correspond to multiple routing options, then run the route for each option, and:
      i. If all the routes are the same, that common route is the route to be used.
      ii. If the routes are different, then there may or may not exist a legal route for that combination of commodities for the specified origin/destination (this will occur only rarely).

12.3 Changing the Status of Hazmat-Prohibited Roads

Customers who have obtained permits can change the status of hazmat-prohibited roads as follows:

1. First make sure "Hazardous Materials" is checked in the Map Features dialog (Map tab > *Map Features*).

2. Select the Tools tab > Avoids/Favors group > *Adjust for Permits*.

3. In the map window click on the prohibited road(s) that you wish to make accessible for routing. The adjusted route segments will change color (the color will depend on which map style is currently active).

All user-created road preferences are saved and managed in the **Haz Permits** tab of the Avoid/Favor Manager (Tools tab > Avoids/Favors group > *Manage* – see section 11.1.1). A comment may be added to each record, either by typing a

comment in the Add Comment dialog that appears when a road segment is clicked or by entering it directly in the Avoid/Favor Manager.
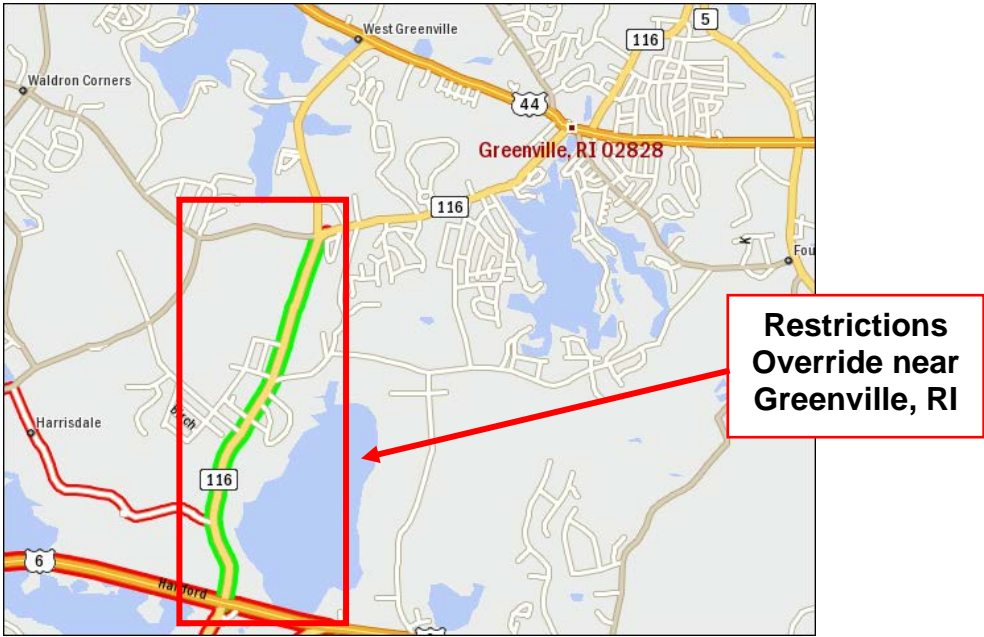
HazMat Restriction Override Shown on the PC*MILER Map

The custom road settings you create can be removed by clicking again on the same roads with the **Adjust for Permits** tool active, or by using the Avoid/Favor Manager.

12.4 Hazardous Material Routing on the PC*MILER Map
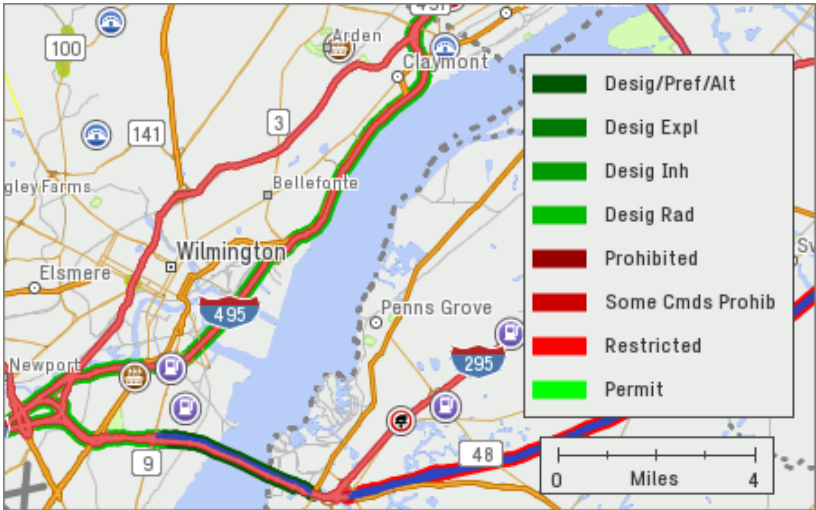
Map Showing Hazmat Restricted Roads & Restrictions Legend

With the PC*MILER|HazMat add-on data module installed, hazmat-prohibited and -designated roads will be highlighted in the PC*MILER map window provided this feature is checked in the Map Features dialog (see TIP below). The Restrictions legend shows the highlight color for various designations (to show/hide this legend, select the Map tab > Customize > *Legends*).

> **TIP:** If you do not want hazmat routing to show up on maps, the highlighting can be hidden from view by turning off the **Hazardous Material** feature in the Map Features dialog. Select the Map tab > Customize group > *Map Features* and uncheck "Hazardous Material", then click **OK** to save.
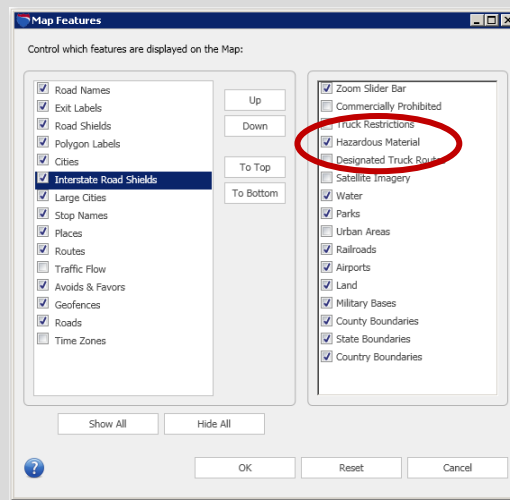
Beginning in Version 28, PC*MILER now offers users an integrated energy-focused map data set for the oil and gas industry. Through partnership with GEOTrac Systems Inc. of Calgary, ALK has created the PC*MILER|Energy data set that includes access roads and infrastructure coverage across states and provinces in North America where oil and gas wells are actively developed and known reserves are found.

PC*MILER|Energy is available as a separate add-on data module for PC*MILER. Your PC*MILER installation must also include the PC*MILER|Streets US and PC*MILER|Streets Canada data modules. With these three modules installed, PC*MILER|Energy gives users the ability to:

- plot the latitude/longitude of a wellhead, facility or land survey address and route directly to it, then view that route on the PC*MILER map;

- generate turn-by-turn directions on leased or bonded roads in and out of well sites and other facilities;

- assign a custom average road speed to all roads classified as "Energy Road" in the PC*MILER|Energy dataset for ETA accuracy;

- switch between the base PC*MILER map data set, accessible to general users of PC*MILER, and the PC*MILER|Energy oil- and gas-specific data set;

- use the PC*MILER Import Custom Place Wizard to customize the PC*MILER database with specific wellhead, facility and land survey addresses, and group those locations into one or more POI (point of interest) category (see section 3.16.5).

*Satellite View of a PC*MILER|Energy Route To a Wellhead*

The PC*MILER|Energy road network currently includes approximately 365,674 miles of access roads that are not included in the base PC*MILER map data set. These roads are found in the following states and provinces: Alberta, British Columbia, Manitoba, and Saskatchewan in Canada; and Arkansas, Colorado, Louisiana, Mississippi, Montana, New York, North Dakota, Ohio, Oklahoma, Pennsylvania, Texas, Utah, West Virginia, and Wyoming.

PC*MILER Version 29 also gives users access to land survey addresses from the Public Land Survey System (PLSS) and the Dominion Land Survey (DLS) including Land Survey Grids (LSDs)*. Land survey POIs give users the ability to route to locations on roads that were created too recently to be included in the most current update of PC*MILER's energy road database.

*   *Oil and Gas field content provided by GeoTrac Systems Inc. ©Copyright 2015. All rights reserved.*

13.1 Accessing the PC*MILER|Energy Data Set

With PC*MILER|Energy data purchased and installed, select the Map tab > Utilities group > *Change Data Set* and select *NA Energy*. (If PC*MILER|Energy data has not been installed yet, see section 2.5.5.) The currently loaded data set will be displayed in the title bar of the PC*MILER map window, shown at the bottom of each page in any reports that are generated, and checked in the *Change Data Set* menu. To switch to another data set, simply select it in the menu.

Before routing with the Energy data set, open the Default Route Options dialog (Routes tab > General group > *Defaults*) and make sure the "**Use Highway Only**" option is **turned off** and the default region is **North America**. Options listed in the route entry window should include "Streets", indicating that local streets will be included in routing calculations, and North America as the region.
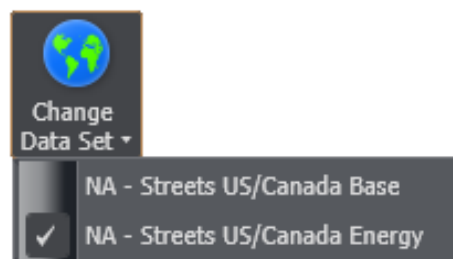
Change Data Set Menu

13.1.1 Searching for Land Survey Addresses

If PC*MILER|Energy and PC*MILER|Streets are licensed and installed, PC*MILER|Energy users now have access to land survey addresses from the Public Land Survey System (PLSS) and the Dominion Land Survey (DLS) including Land Survey Grids (LSDs). Users can search for a land survey name with an exact 12-character match, for example, "**SW NW S27 T010N R020W**". These locations can be added as stops on a route, saved as custom places, and displayed on the map.
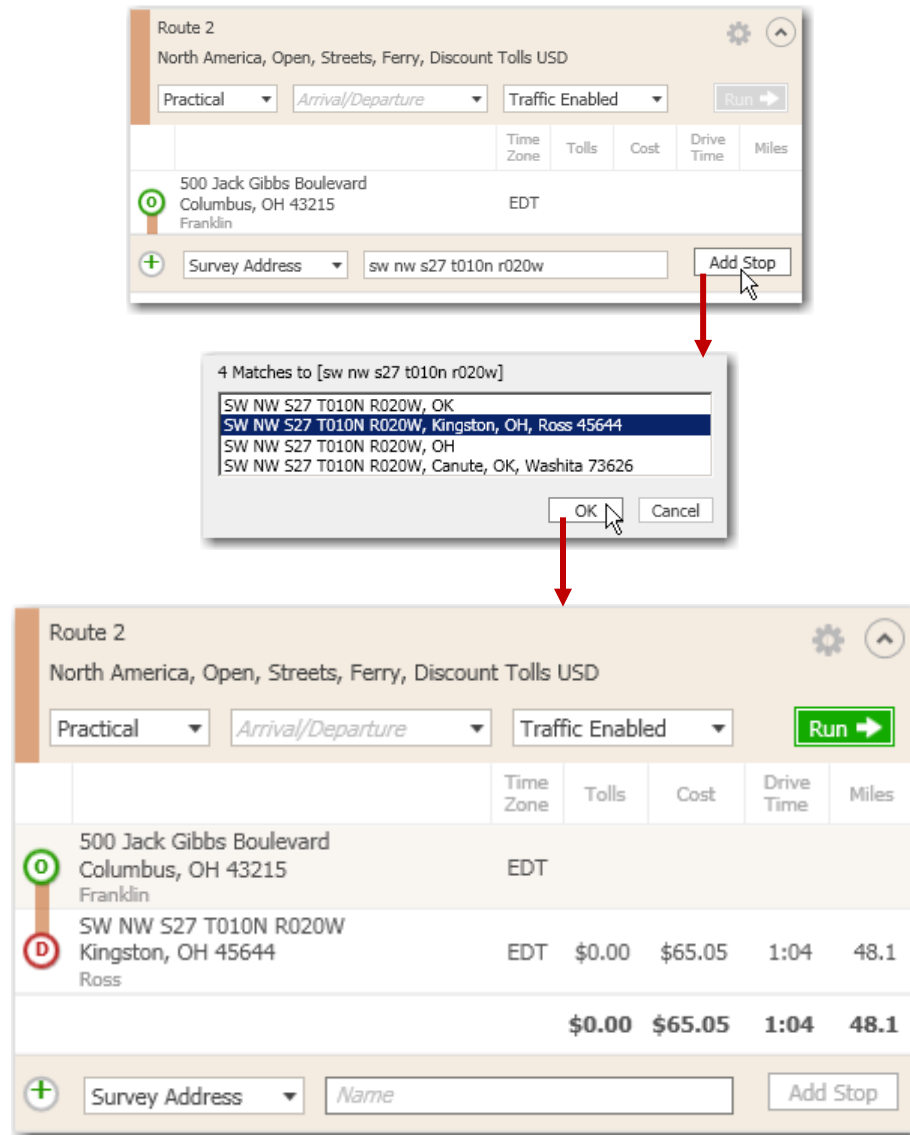
Generated Trip To a Survey Address

13.2 PC*MILER|Energy Routing and Mapping

With the *NA Energy* data set selected and local street routing activated, you are ready to generate PC*MILER routes directly to the latitude/longitude points where wellheads or other oil and gas facilities are located, using leased or bonded access roads to get there. For lat/long formats that PC*MILER accepts as stops, see section 3.6.18. Use the 6-digit decimal format for precision and best results. Locations can also be picked off the map using the mouse – see section 3.6.24. To change the map to a satellite view, select the Map tab > Customize group > *Map Style.* An internet connection is required to display satellite images.

The two routes shown below illustrate the difference between a route calculated using the PC*MILER|Energy data set and one that does not use the Energy data. The route run without Energy data uses the air distance between wellheads.

Routing at a Well Site Near Odessa, TX – Using Energy Data
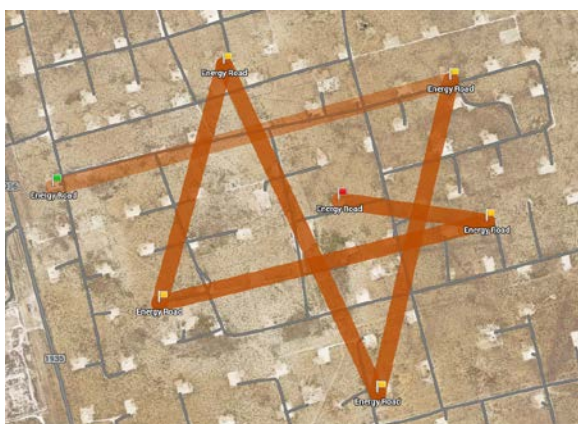
*Routing at a Well Site Near Odessa, TX – Without Energy Data
(Route Uses Air Distances)*

Beginning in PC*MILER Version 29, ALK Cloud Services is available for users who are interested in sharing data. *(An active internet connection is required to use ALK Cloud Services.)*

The benefits of using ALK Cloud Services include:

- Allows users to seamlessly and securely create, modify, and share user-generated data.

- Provides reliable backup and restoration of user-generated data.

- Provides a common company account and user login.

Currently, ALK Cloud Services enables sharing of custom place data generated by users of the PC*MILER user interface. It also enables RouteSync users to dispatch routes and trip options to drivers equipped with ALK's CoPilot Truck navigation software on mobile devices in the cab. (See Chapter 15 for a description of the RouteSync features available in PC*MILER.)

14.1 Creating an ALK Cloud Account
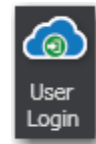
1. Select the ALK Cloud tab > ALK Cloud group > *User Login.*

2. In the ALK Cloud Login dialog, click the secure link to the right:

3. On the web page that opens, click **Sign Up**:
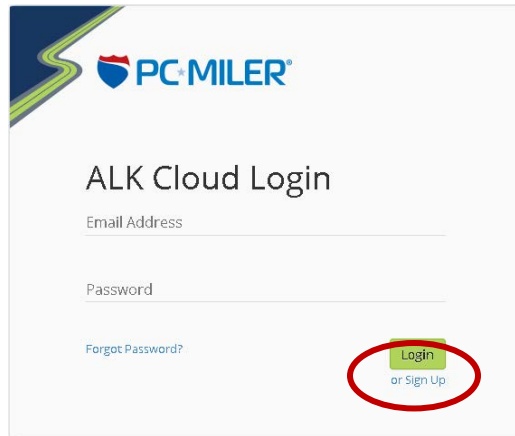
4. In the ALK Cloud Signup screen, enter a unique, valid email and click **Continue**.
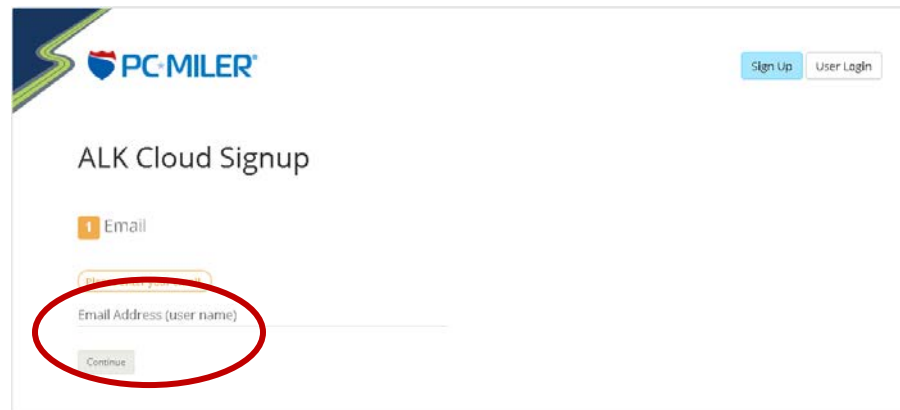
5. In the next screen, enter a first and last name, a password (8 characters or more), and a name for this new account, then click **Submit**.
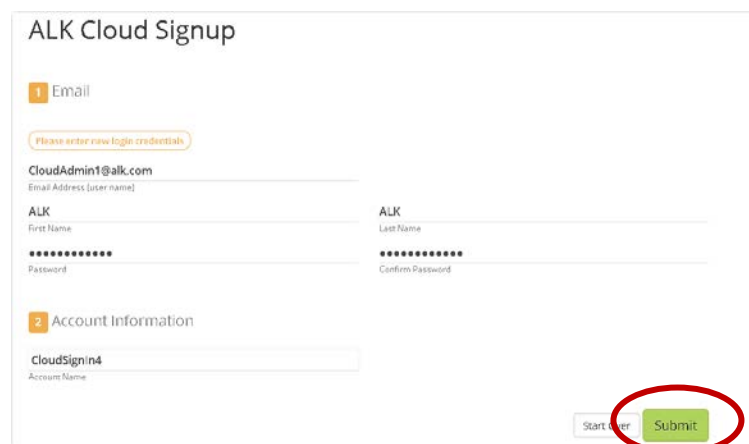
6. After a few seconds of processing, you should see a login screen that displays the message "**You have successfully signed up**" and you will receive an email confirming that you created an account. You can **Login** immediately

from this screen or close the web page and login later from the ALK Cloud ribbon in PC*MILER.
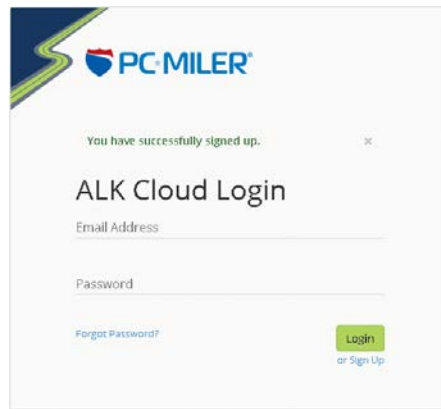
14.2 Login, Settings and Options

To login to your new account from PC*MILER, select the ALK Cloud tab > ALK Cloud group > *User Login* and enter the user name (email) and password that you used to create the account. If there is more than one account associated with the email you enter, you will also need to pick an account from the drop-down list that appears under your password:
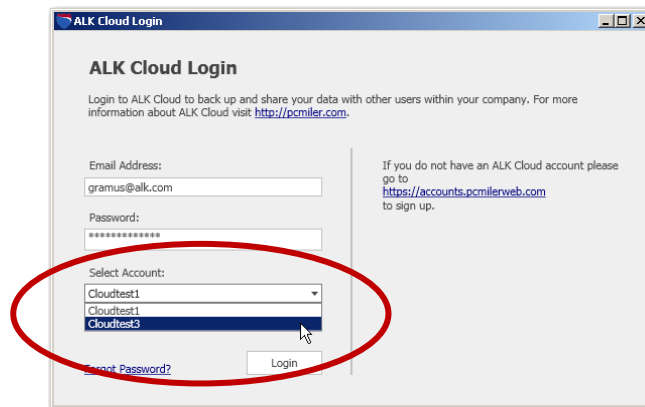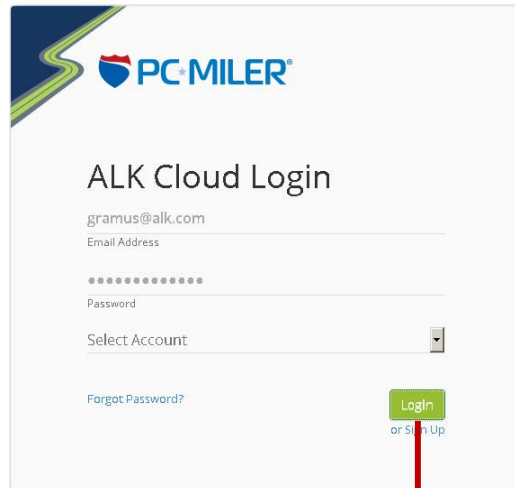
If the login was successful, you'll see the icon on the ALK Cloud tab turn green:

After login, select the ALK Cloud tab > ALK Cloud group > *Manage Account* to bring up the *Manage ALK Cloud Account* web page. You'll be asked to login again first.

When you set up a new Cloud account, you are automatically given administrator status for that account. As an administrator you can add or disable users on the account, permanently cancel the account, and change your own password.

Users on an account may be given administrative rights by the original administrator, and one user can join multiple accounts.
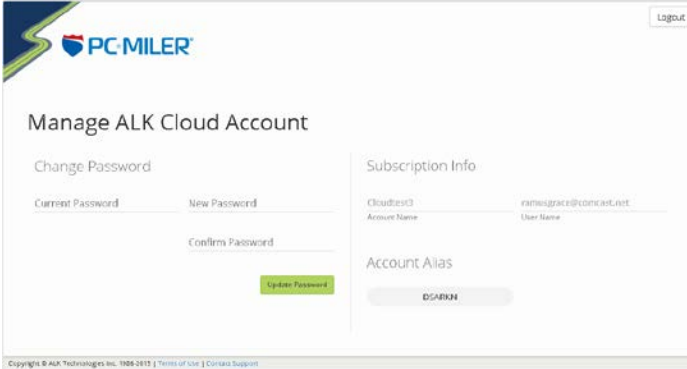
14.2.1 Adding/Deleting Users

To add a user to the account, click **Add User to Account**, enter a first and last name and email address, then click **Add**. The user will be added to the account and will receive a Welcome email from ALK Cloud Services that includes a link to create a password.

When the new user has been added to the **Account Users** list, check the **Account Administrator** column if you want to give this user administrative rights. By default, each new user you add will be **Enabled**. An administrator can disable a user temporarily by unchecking this option, or by clicking the garbage can icon in the **Remove** column. The deleted user's ID will remain on the list but the user will no longer have access to the account.

14.2.2 Administrators vs. Non-Admin Users

Users who do not have administrator rights won't see the **Account Users** list, the **Cancel Account** button, or the **Regenerate** button for the account Alias. They can change their password, and view subscription information and the account Alias. Here is what the non-admin user's account management page looks like:

14.2.3 How Is the Account Alias Used?

The Account Alias is a system-generated string of six letters that uniquely identifies your account on the cloud. It is displayed on the ALK Cloud ribbon in PC*MILER when a PC*MILER user logs into the account. The Alias can be given to remote users to allow them to join the account and receive RouteSync routes on their mobile devices while using CoPilot (see Chapter 15 for more on RouteSync).

To disable an Alias and create a new one for the account, an administrator can click **Regenerate**.

14.2 Sync Data

NOTE: To sync data on the Cloud, you must login to the same ALK Cloud account on both the server and the workstation. Even if you login to the ALK Cloud account on your workstation, but you are not logged into the same account on the server, syncing won't work.

Syncing your custom place data makes it available to all other users on the ALK Cloud account that you are logged into. The goal is to provide built-in sharing and backup of this data so that users need not manage their custom places manually and can share files over a network. Here are a few things to keep in mind regarding data syncs:

- Only one user at a time may edit the data set on the ALK Cloud (by syncing), simultaneous editing is not currently supported.

- Data syncs always apply in both directions (to and from the cloud) and data from the ALK cloud is synced back to users as a complete set. Data will never be partially synced. **Syncing your data will overwrite any local unsynced data sets.**

- **All users on the Cloud should sync up immediately after login** to avoid the possibility of data loss. As an illustration, consider the following scenario: User 1 creates 50 custom places and then syncs her data. A few minutes after User 1's sync, User 2 creates 50 custom places without syncing first, and then syncs his data. In this scenario, User 1's data would overwrite User 2's data and User 2 would lose his custom places because he did not sync before starting his local edits.

- **Cloud data is not available when the user is not logged in.** Only data that was created locally when the user was offline will be available.

- **A user should not choose to use the Cloud sometimes and not other times.** Participation in ALK Cloud Services is optional. Users may choose to continue storing data locally. However, intermittent use of ALK Cloud Services would create a non-optimal situation in which the most up-to-date or desired data might not be available to other Cloud users.

To sync your data, select *Sync Data* on the ALK Cloud ribbon in the PC*MILER application window.

RouteSync by ALK Technologies is an add-on to PC*MILER that provides a direct link between two of ALK's existing industry-standard products: PC*MILER routing, mileage and mapping software in the back office and CoPilot Truck – ALK's truck-specific GPS navigation system for mobile devices – in the vehicle.

PC*MILER, synced with CoPilot Truck in the cab via RouteSync, now offers the transportation and logistics industry a unique tracking and route management capability. PC*MILER route compliance ensures that CoPilot Truck will follow user-defined routing (Practical, Hazmat, Toll Discouraged, etc.) that includes vehicle dimensions and custom avoid/favor routing preferences.

RouteSync is an ideal fit for motor carriers, private fleets and owner operators who need to maintain operational consistency between PC*MILER operations and accounting functions in the back office and their vehicles. It offers a flexible approach to minimizing the mileage variance between actual and planned routes.

From the back office, RouteSync can be used in the following ways:

- send routes and trip options* to CoPilot Truck in the cab;
- send a PC*MILER route's lat/long sequence to CoPilot Truck;
- tell CoPilot Truck how strictly its in-cab directions should follow the exact route calculated by PC*MILER for a trip;
- provide Out-of-Route warnings to drivers via CoPilot when they depart from the prescribed route, exceeding a specified distance from the route.

* Note that avoid/favor options are the exception, they currently cannot be sent via RouteSync.

NOTE: PC*MILER|Streets and RouteSync must be licensed and installed, and you must have an active internet connection to use RouteSync. For RouteSync hardware and software requirements, see section 2.1.2, *Requirements.*

15.2 Getting Started With RouteSync

To use RouteSync, you must first log in to an ALK Cloud Services account. To set up an account, see section 14.1.

Follow these steps to get started:

1. Open PC*MILER and select the ALK Cloud tab > ALK Cloud group > *User Login.*
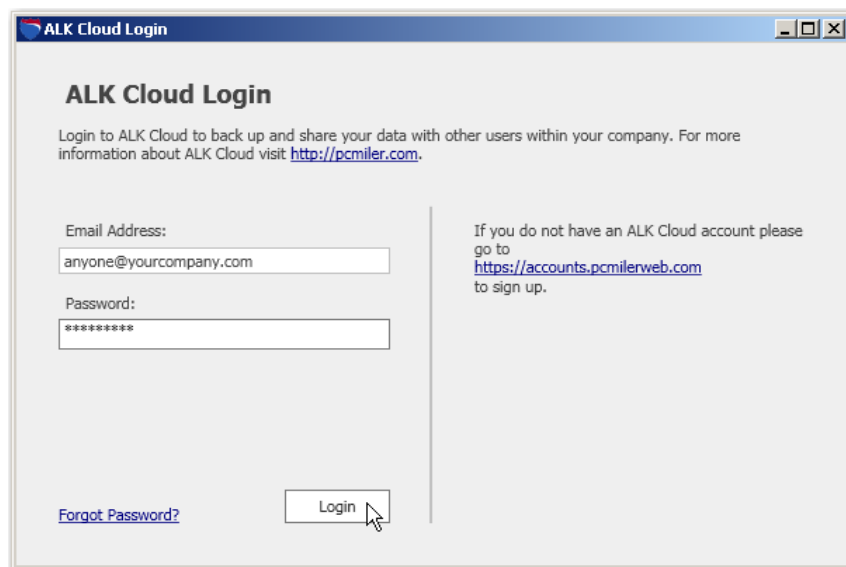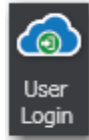
2. Enter the email address and password that were used to create an ALK Cloud Services account, and click **Login**.

3. If the login attempt was successful, you will see the icon on the ALK Cloud tab turn green:
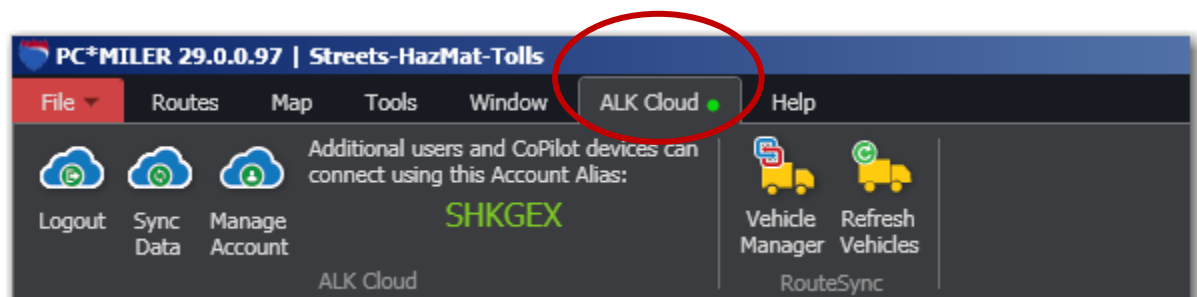
15.3 Adding Drivers

To invite CoPilot-equipped drivers to join your ALK Cloud account:

1. After login, select the ALK Cloud tab > ALK Cloud group > *Manage Account* and enter the required email and password. If you belong to more than one account, you will need to select an account from a drop-down list.

2. When the *Manage ALK Cloud Account* web page opens, you have two options: you can 1) provide drivers with the **Account Alias** shown on the page, which they then use to login and join the account from within CoPilot, or 2) add drivers to the account as new users directly from the *Manage Account* page by entering the email address the driver used while activating CoPilot after installation on a mobile device. Using the *Manage Account* page generates a "Welcome to ALK Cloud" email that enables the driver to sign up. For this second option, continue with the steps below.

3. To add a driver as a new user, click **Add User to Account**.

4. Enter a first and last name and a valid email address at the prompts that appear below, then click **Add**. The email you enter **must match** the email that the driver used when installing CoPilot.

5. You'll see the new user added to the list of **Account Users**, enabled by default. Each user you add will receive an email for signing up. To temporarily disable a user, uncheck the **Enabled** column, or click the garbage can icon (the user will remain on the list but access to the account will be denied in both cases).

15.4 Sending Routes and Options from PC*MILER to CoPilot

The usernames (emails) of all CoPilot-equipped drivers who join your ALK Cloud account will appear in the RouteSync Vehicle Manager, along with their online/offline status. Select *Vehicle Manager* on the ALK Cloud ribbon to open the Vehicle Manager and see all users who have joined your account.
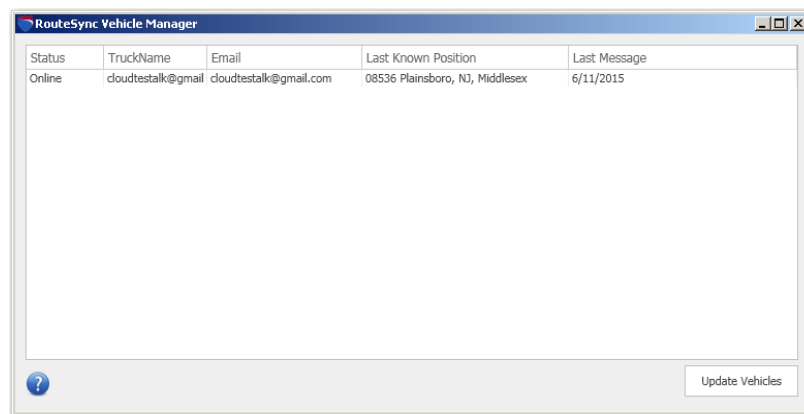
RouteSync Vehicle Manager

PC*MILER routes can be sent to any CoPilot-equipped driver listed in the Vehicle Manager. By sending a route to CoPilot, the sender requires the driver to adhere precisely to that route. To send a route, follow the steps below.

1. **Run a PC*MILER Route.** PC*MILER|Streets must be installed.

2. **Open the Send Route dialog.** In the route window, click the gear button and select *RouteSync*.
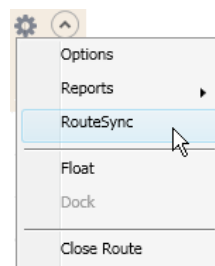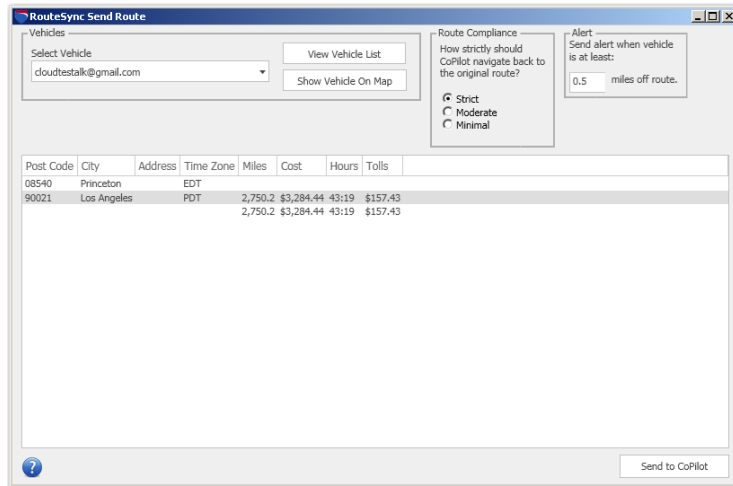
RouteSync Send Route Dialog

3. **Select a Vehicle.** In the Send Route dialog, select one or more vehicles from the **Select Vehicle** drop-down. Click **View Vehicle List** to view the online/offline status of all users on your ALK Cloud account.

4. **Select Route Compliance Level.**
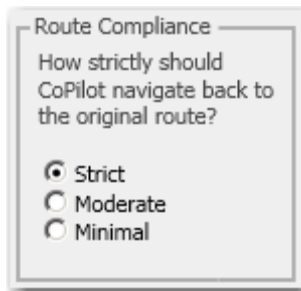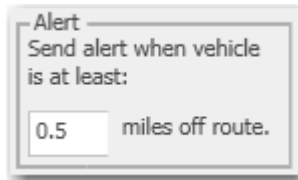
Under **Route Compliance**, select how strictly CoPilot should try to return to the original route once the driver is out-of-route:

Strict: This is the default compliance level. CoPilot will try to navigate back to the original route at all costs, even if it means the driver needs to turn around and drive back to rejoin the prescribed route.

Moderate: CoPilot will try to navigate back to the original route but will take into account the driver's current position in relation to the destination; i.e. CoPilot will try to rejoin the prescribed route as it navigates towards the destination, but along a route that is more reasonable than what the Strict compliance level would follow.

Minimal: At this level, the original prescribed route is not taken into consideration. The route taken may still rejoin the original route, but its first objective is to navigate to the destination from the driver's current position.

5. **Set a Distance That Triggers an OoR Alert.**

Whenever the CoPilot-equipped vehicle goes off route, CoPilot generates an alert for the driver that is also sent to the PC*MILER-side dispatcher. By default, an out-of-route alert is generated when the vehicle reaches a point .2 miles away from the planned route. To adjust this distance, type in a new distance under **Alert**.

6. **Send the Route.**
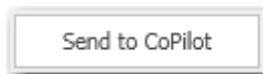
Click the active **Send to Copilot** button.

The CoPilot user will receive an onscreen alert that a route has been sent and may choose to click **OK** to accept the route, or **Details** to see driving instructions.

15.5 Managing and Tracking Vehicles
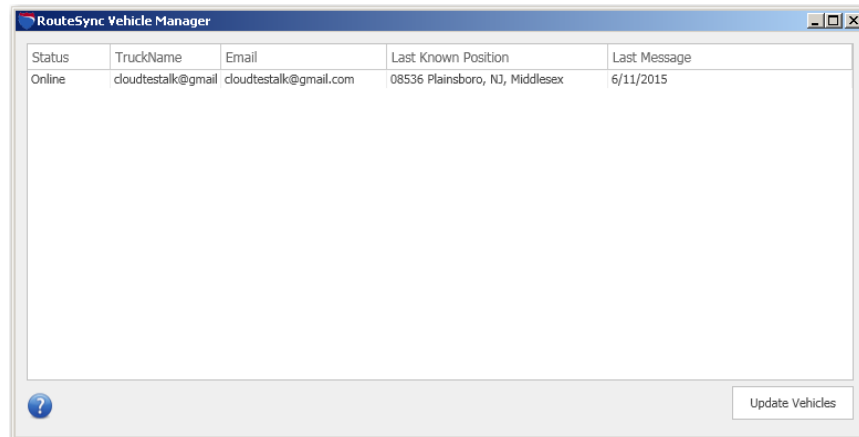
RouteSync Vehicle Manager

To Track Vehicles:

To see all vehicles that have accepted to join your account, click **View Vehicle List** in the Send Route dialog or *Vehicle Manager* on the ALK Cloud ribbon.

Vehicles in the Vehicle Manager are listed by their associated CoPilot ID under **TruckName**. For each vehicle, PC*MILER displays an online/offline **Status** and **Last Known Position**. For trucks that are offline, the date/time when the truck went offline is shown. The last column in the Vehicle List records the last message that the dispatcher received from a truck, including a timestamp and message description.

When you select a vehicle on the list, its **Last Known Position** will be displayed if it is available. If a vehicle is offline, the route that you send will be received when CoPilot comes back online in the vehicle.

To Delete Vehicles:

Use the Manage ALK Cloud Account web page. See section 14.2.1.

To Update the Vehicle List:

To refresh the information in the Vehicle Manager, click **Update Vehicles**.

15.6 Vehicle Display on the Map

To zoom to a vehicle's current or last known position on the PC*MILER map, in the Send Route dialog (gear menu > *RouteSync*) click **Show Vehicle On Map**. The vehicle's position on the map is updated automatically every 60 seconds.
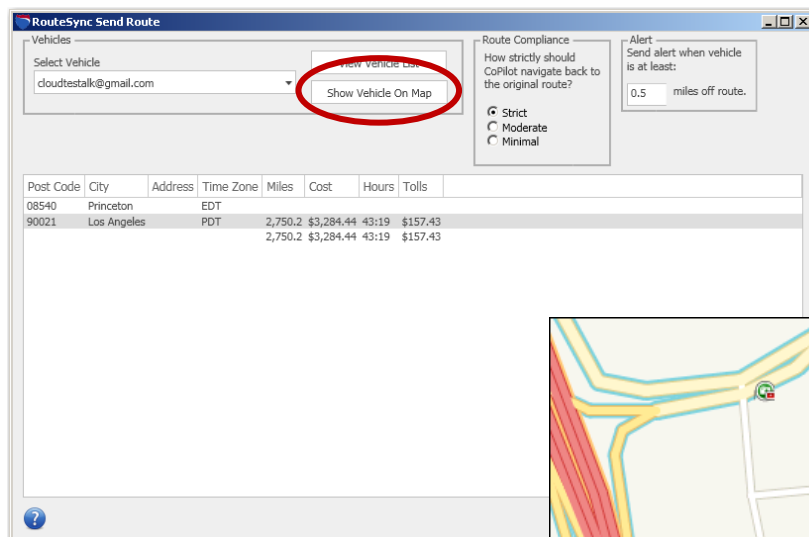
Send Route Dialog
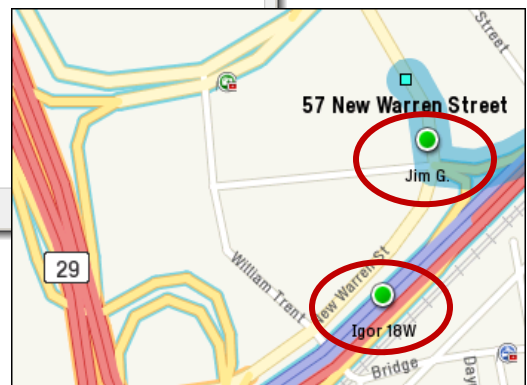
Two Online Vehicles on the Map

Technical Support & Contact Options

16.1 Technical Support Options

ALK Technologies offers one year of free unlimited technical support to all registered users of PC*MILER. If you have unresolved questions about PC*MILER or problems with the software, visit us at www.alk.com/support for answers to frequently asked questions (FAQ) or contact us in the following ways:

Phone: 1.800.377.6453, ext 2 or 609.683.0220, ext. 2. When calling, ask for PC*MILER Technical Support. Please be sure to have your PC*MILER Product Key Code, version number, Windows® version number, and hardware configuration information (manufacturer, speed, and monitor type) available before your call. Please include this information in your message if you are contacting us by email.

Email: pcmsupport@alk.com, or from within PC*MILER select the Help tab > Technical Support group > *Email Technical Support* and follow the instructions provided. If you have any supporting material, click **Attach File** and browse for the file(s) to attach. Attachments of supporting documentation can be **up to 10 MB**. When ready, click **Send**. ALK's technical support team will send a confirmation email to the email entered in the "Enter your email here" field when it is received.

Web Site: www.pcmiler.com

Hours: 9:00am – 5:00pm EST, Mon-Fri

To print additional copies of this *User's Guide*, click the Windows **Start** button, then go to **All Programs > PCMILER 29 > User Guides** and select the .pdf file from the sub-menu.

16.2 PC*MILER Sales Contact Information

Phone: 800.377.6453, ext 1
 609.683.0220 (outside the U.S.)
Fax: 609.683.0290
Email: sales@alk.com
Web Site: www.alk.com/support
Address: ALK Technologies, Inc.
 457 North Harrison Street
 Princeton, NJ 08540 USA

16.3 PC*MILER Updates

A new, updated release of PC*MILER is offered on an annual basis. Updated releases of PC*MILER|Worldwide and DTOD data are provided annually several months following the PC*MILER for North America release. Updates may include revisions to the software, updates to the North American and Worldwide highway and road network databases, and updates to the SPLC and ZIP/Postal code databases. To order your annual update contact ALK Technologies, Inc. or your PC*MILER dealer.

Between version releases, updates and patches are periodically made available as the need arises. These may include corrections to any reported errors in the software or data, or access to new data releases (for applicable products and license types*). Note that these patches and updates are now cumulative, meaning they include items from previously released patches/updates of the same type. **ALK strongly recommends checking for the most current updates regularly. This is recommended for all users, but particularly important for PC*MILER|Tolls users.**

* **NOTE:** If a PC*MILER product was purchased along with signing up for ALK's Annual Update Program (AUP license purchase), customers are entitled to use PC*MILER during the term of their agreement and also to receive data updates when and if available. AUP licensed users will have access to the base version data set as well as to any more recently released data sets as they are available. For those who do not sign up for the AUP, PC*MILER is purchased as a Perpetual license which entitles the licensed user to any available software patches released for the purchased version, and any available toll data updates if PC*MILER|Tolls was purchased.

For more information on upgrading a Perpetual license to an AUP license, please contact an Enterprise Solutions account executive at 800-377-6453 ext. 1 or email sales@alk.com.

16.3.1 Using the Updater Tool

Provided you have an internet connection, follow the steps below to install the available updates:

1. Close all open instances of PC*MILER and its connectivity products. If a third-party program that accesses any PC*MILER component is running, (for example, PC*MILER|Connect or PC*MILER|Mapping) it must be closed before updating.

2. Open PC*MILER and select the Help tab > Windows group > *Check for Updates*. The PC*MILER Updater dialog will open. The Updater first

checks for valid license information and then begins checking for available updates.
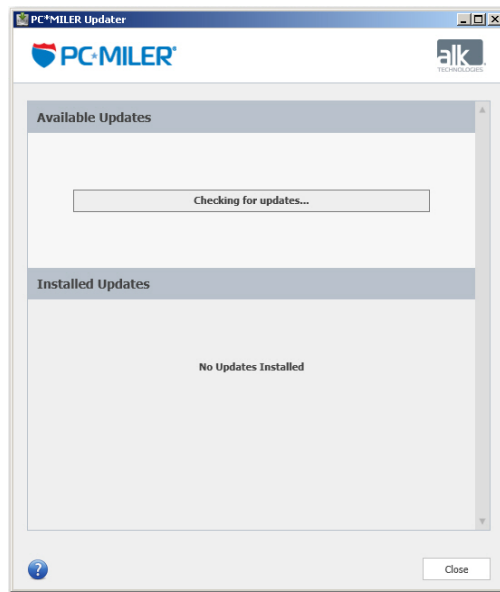
PC*MILER Updater

3. When the search for updates is complete you will see all available updates listed. In the **Download & Install** drop-down menu next to each available update, select either *Download & Install* to download and install right away or *Download* to download now and install at a later time.

Download and Install Options

4. Note the version number of the updates you will be downloading so you can check if the update installed properly (see Step 7 below).

5. Selecting either option will begin the download process. You will see the progress of the download reflected in a progress bar. If any PC*MILER-related application is open, you will be prompted to close it. After closing the application(s), click **OK** to continue with the download.
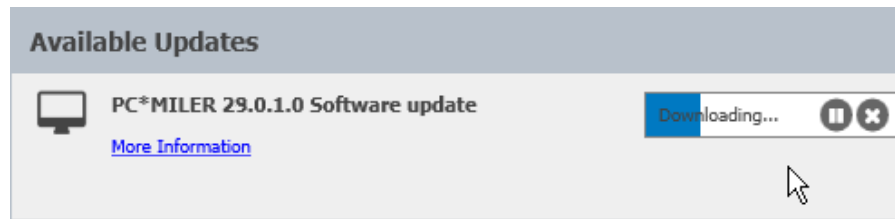
6. If you chose *Download and Install*, the InstallShield Wizard will open when the download is finished. Follow the instructions to complete the installation. After installing, you will see the update listed under "Installed Updates" in the Updater window.

   If you chose *Download*, when the download is finished the button to the right will now say "Install". You can complete the installation as described above at any time in the future by opening the Updater window and clicking **Install**.

   IMPORTANT: You must close the Updater after processing is finished. The next time you open the Updater, the files you downloaded will be shown in the "Downloaded Updates" section of the dialog.

7. As a last step, check to make sure the update installed properly. Select the Help tab > About group > *About* and look for the Software Version number under "This Product is Licensed To". It should match what you downloaded.
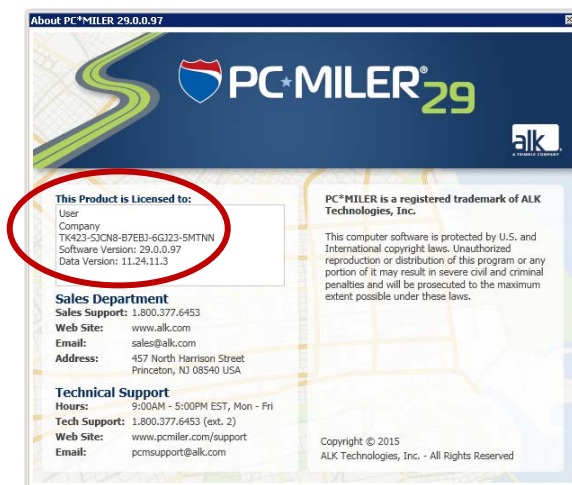
*PC*MILER "About" Window*

16.4 Reporting Data Errors

ALK Technologies' North American and Worldwide highway and road networks – the primary databases used by PC*MILER products – undergo constant revision. Revisions include the addition of new roads, upgrades of improved sections of highway, and addition of new Key Cities.

ALK Technologies is dedicated to maintaining a highway and street-level network of the highest quality and welcomes user input and comments. If you encounter any problems related to mileage, routing or highway names, from within PC*MILER please go to the Help tab > Technical Support group > *Email Data Correction* and follow the on-screen guidelines to submit the issue. Supporting documentation can be attached to this email form, just click the **Attach File** button and browse for the file. Attachments can be up to 10 MB.

When you are finished filling out the form, click **Send** to send it. Our digital cartography team will make every effort to correctly analyze and incorporate your data suggestions.

You can also print a copy of the route, highlighting the problem (such as incorrect road name, mileage, city name, postal code) and send it to:

<div align="center">

PC*MILER Products Division
ALK TECHNOLOGIES, INC.
457 North Harrison Street · Princeton, NJ 08540 · USA
Email: pcmsupport@alk.com

</div>

ALK® Technologies, Inc., a Trimble® company headquartered in Princeton, NJ, was founded in 1979 as a transportation industry pioneer. ALK harnesses the power of information technology to enhance transportation and mobility, supporting competitive advantage and improved quality of life.

Today, ALK is a global leader in GeoLogistics® solutions and navigation software, focused on developing innovative solutions for transportation, logistics, mobile workforces and consumers. Product lines include award-winning CoPilot®, a leading source of GPS navigation software for fleets, mobile operators, hardware OEMs, systems integrators, professional drivers and consumers. ALK's PC*MILER® is widely recognized as a transportation industry standard for routing, mileage and mapping. ALK® Maps is a development platform designed for the transportation industry and provides commercial routing, geocoding and mapping visualization for enterprise applications.

See section 17.1 below for an overview of ALK's Enterprise Solutions. For detailed product information, visit us at www.alk.com or www.pcmiler.com.

17.1 Enterprise Solutions from ALK Technologies

Contact an Enterprise Solutions account executive to find out how the following value-add on solutions can boost productivity, reduce out-of-route mileage and improve return on investment. For more detailed information on each product, go to www.alk.com or www.pcmiler.com.

- **PC*MILER** — PC*MILER is truck-specific, point to point routing, mileage and mapping software that the transportation and logistics industry depends on to succeed. Accuracy and reliability have positioned PC*MILER as the software used by 98 of the top 100 motor carrier, 46 of the top 50 freight transportation firms and 47 of the top 50 logistics companies in North America. The U.S. Department of Defense (DoD), the General Services Administration (GSA) and the Federal Motor Carrier Safety Administration (FMCSA) also rely on PC*MILER as their worldwide distance standard.

- **PC*MILER|Streets** — PC*MILER|Streets is street-level routing, mileage and mapping software designed to provide dock-to-dock driving directions over truck-specific routes. It includes all the features and functionality of PC*MILER plus an enhanced street-level routing network, map database, and street address database. Ensure that your vehicles and loads get to the right place using the most precise truck-specific route possible, taking into consideration truck-preferred and truck-restricted roads. PC*MILER|Streets data is available for the U.S. and Canada and, with PC*MILER|Worldwide, for many countries outside North America.

- **PC*MILER|Traffic** — PC*MILER|Traffic calculates more accurate transit times and ETAs with real time, historical and predictive traffic speed data. It allows visualization of traffic trends directly on the PC*MILER map. PC*MILER|Traffic includes a "Fastest" routing type that optimizes overall transit time, taking into account real time traffic congestion and predictive traffic speeds, by the hour and by the day.

- **PC*MILER|Tolls** — PC*MILER|Tolls calculates truck-specific toll costs based on a vehicle's weight, axle count, trailer count, transaction type (cash or discount program), and time of day travel in the U.S. and Canada. It is driven by the same technology and map data set as ALK's industry-standard PC*MILER routing, mileage and mapping software. When generating routes, truck-specific toll costs are added into a route's overall calculation. Determine whether it's more cost-effective to take a toll route, or a non-toll route with a few additional miles, before routing a vehicle.

- **PC*MILER|HazMat** — PC*MILER|HazMat generates point to point and street-level routes, mileage and driving directions for hauling hazardous materials and dangerous goods in the U.S. and Canada. Federal government mandates state that shippers and carriers are to implement security plans regarding the transport of hazardous materials. A major step in that process is

providing drivers with routes and mileage that ensure compliance with these federal, state/province and local restrictions and route designations. To ensure fleet and driver safety, PC*MILER|HazMat identifies where drivers should legally be traveling for the particular type of hazardous commodity they are hauling.

- **PC*MILER|Worldwide** — PC*MILER|Worldwide is point-to-point routing, mileage and mapping software that generates routes, distances, maps and driving directions over the entire international highway network. Employ the functionality of PC*MILER across worldwide data coverage, including Africa, Asia, Europe, the Middle East, North America, Oceania, and South America. Additionally, street-level address data modules are available for the U.S. and Canada, Europe, and many countries in worldwide regions.

- **PC*MILER|BatchPro** — PC*MILER|BatchPro is a batch-processing tool that permits the simultaneous processing of large volumes of lanes (set as origin/destination pairs) entered as city/state combinations, ZIP or Postal Codes, or latitude/longitude coordinates rather than entering routes individually. It gives you the ability to generate routes, mileage, as well as cost and time information per route.

- **CoPilot® Truck** — CoPilot Truck offers an easy to use, intuitive interface with spoken turn-by-turn directions and easy to follow, non-distracting guidance displays. Unlike standard car navigation systems, it calculates efficient routes based on your vehicle profile information, routing parameters and load type, including hazardous materials. Running conveniently on a wide range of smartphones, tablets and laptops, CoPilot Truck uses street-level ALK Digital Maps™ enhanced with industry standard PC*MILER truck-specific attributes featuring 3.52 million commercial truck restrictions and allowances. With powerful multi-stop routing it effortlessly provides the optimal route for any itinerary, while automatically avoiding commercial truck restrictions to increase efficiency, reduce mileage and help avoid costly fines and vehicle damage.

- **RouteSync** – RouteSync provides the transportation and logistics industry with a crucial link between the planned route in the back office and the navigated route in the cab. RouteSync delivers the guidance to drive the miles that are being billed. Using RouteSync, dispatchers can send PC*MILER optimized routes directly to drivers running CoPilot Truck on an on-board device, smartphone or tablet.

- **ALK® Maps** – ALK Maps is a JavaScript API for interactive visualizations tailored to the transportation industry. Powered by the same core technology that drives ALK's portfolio of GeoLogistics® and navigation software solutions, ALK Maps provides a high-quality customized alternative to consumer mapping services that can be used in web applications, mobile apps, or desktop products. With only a few lines of code, an interactive map can be displayed; and a few more lines of code enables route generation and address

geocoding. ALK Maps is designed to get you up and running quickly and with less overhead.

- **PC*MILER|Web** – PC*MILER|Web is an internet-based version of PC*MILER, available in monthly, quarterly or annual subscription packages. This product is perfect for owner operators, fleets, brokers, or anyone else who needs instant, accurate mileage for rate calculation or truck-specific driving directions or maps. And it's accessible on the web through any internet-connected computer, in the office, at home, or on the road.

- **PC*MILER|Rail** — PC*MILER|Rail is the rail and logistics industry's leading point-to-point routing, mileage and mapping software. Widely used in fuel surcharge calculation, equipment management, rail car mileage auditing, carrier selection, rate determination and negotiation, and ad valorem tax reporting, PC*MILER|Rail determines actual operating or fuel surcharge routes and mileage using station/state abbreviations or railroad industry codes. Through ALK's close working relationship with all major railroads, PC*MILER|Rail features the most accurate digital representation of the North American rail network.

CONNECTIVITY and INTERFACE PRODUCTS

- **PC*MILER|Connect** — PC*MILER|Connect seamlessly interfaces PC*MILER routes, mileage and reports with third-party and custom systems, such as transportation and logistics management software systems. Client applications are able to retrieve PC*MILER distances, detailed driving directions, drive times, state-by-state mileage summaries, stop optimization functionalities and more.

- **Multi-Version Switch (MVS)** — Multi-Version Switch is a high-end function of PC*MILER|Connect that serves as an integration tool designed to simultaneously support multiple versions of PC*MILER that are installed on one server or on several different servers. Instead of manually querying data from each individual version, the Multi-Version Switch functions as the main connection point to programmatically gain access to the version of choice.

- **PC*MILER Web Services** — PC*MILER Web Services is an integration tool designed to efficiently fulfill all PC*MILER routing, mileage and mapping transactions in a simple hardware and software-agnostic system interface to any computing platform. It offers a standardized way of integrating PC*MILER with Web Services, .NET, or Web-based applications using XML (Extensible Markup Language) and SOAP (Simple Object Access Protocol) over an Internet Protocol Backbone – all developed in Microsoft® .NET.

- **PC*MILER|Mapping** — PC*MILER|Mapping seamlessly interfaces PC*MILER routes and geographic data on maps for integration with real-time dispatch and operations analysis programs. PC*MILER|Mapping allows you to include commands in spreadsheets, databases and custom systems to obtain a visual overview of your data.

- **PC*MILER|Spreadsheets** — PC*MILER|Spreadsheets gives you the ability to access PC*MILER features and functionality from within your own spreadsheet software. Generate point-to-point or street-level mileage and drive times within a spreadsheet program, and then use built-in functions to summarize and analyze your data. PC*MILER|Spreadsheets provides a seamless interface with PC*MILER and Microsoft Excel, allowing you to perform customized data analyses.

- **PC*MILER|TCP/IP** — PC*MILER|TCP/IP is an integration tool that provides an interface to PC*MILER|Connect running in a Windows® environment to an application residing on another platform. Through a TCP/IP network, client applications can access a text-based interface to call PC*MILER|Connect's features and functionality. The interface opens cross platform communications in a thread-safe manner, giving you the flexibility to transmit the output of PC*MILER|Connect to multiple networks within your organization.

- **PC*MILER|Rail-Connect** – This PC*MILER|Rail connectivity product seamlessly interfaces with custom third-party systems such as transportation and logistics management, costing and tracking software systems. Custom client applications are able to retrieve PC*MILER|Rail routes, maps, distances, detailed reports, state-by-state and railroad mileage summaries, and much more. Also includes the ability to access the PC*MILER|Rail database from within your own spreadsheet software.

- **PC*MILER|Rail-BatchPro** – PC*MILER|Rail-BatchPro processes large volumes of origin-destination pairs formatted as city/state names, SPLC's, FSAC's, ERPC's (3-3-3's) or R260 junction codes. PC*MILER|Rail users can save time using batch processing rather than entering rail routes individually.

- **PC*MILER|Rail-TCP/IP** – This product is an integration tool that provides an interface to PC*MILER|Rail-Connect running in a Windows environment to an application residing on another platform. Through a TCP/IP network, client applications can access a text-based interface to call PC*MILER|Rail-Connect's features and functionality. The interface opens cross-platform communications in a thread-safe manner, giving you the flexibility to transmit the output of PC*MILER|Rail-Connect to multiple networks within your organization.

ADDITIONAL DATA MODULES

- **Canadian Postal Codes** — Enhance the PC*MILER database with six-digit Canadian Postal Codes. Enables search and display of corresponding city/province names to enter them as stops along a route.

- **Standard Point Location Codes (SPLC)** — Add SPLC to the PC*MILER database to generate routes for rating and freight bill auditing. A SPLC provides each point originating freight and each point receiving freight in North America with a unique code number that identifies the point by its geographic location.

- **PC*MILER|Energy** — Provides oil- and gas-specific data and facilities including bonded or leased access roads. Users can now generate precise mileage and driving directions that take them directly to facilities in the patch including off-road wells, compressor stations, and plants.

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APPENDICES
on the following pages

A: Access Policies for the National Network

B: Canadian Counties

C: State/Province/Country Abbreviations

D: Valid Entries for Street Addresses

E: Default Road Speeds by Jurisdiction

F: Toll Plaza Names in Reports

G: Toll Roads Requiring Electronic Payment

H: Postal Code Formats in Worldwide Regions

I: Worldwide Data Coverage & Postal Code Access

Reasonable Access Defined

Reasonable access is the deviation allowed between the specified truck network and any allowable stops. A stop is typically defined as a place of loading or unloading, or facilities for food, fuel, repairsand rest. In all cases, local signs and warnings prohibiting truck access or providing an applicable restriction take precedence over reasonable access rules. In some states the deviation allowed from the National Network or 53 Foot Designated Truck Network may vary depending on the roads used to get to the stop. If this is the case, we have differentiated between reasonable access from the truck route and on a state highway versus local roads.

For detailed information about pre-approved routes, contact the individual states.

PC*MILER Designated Road Categories

In the PC*MILER database, roads designated for 102" wide, 53' long trailers or twin 28' long trailers are coded in three ways:

- **National Network** – These are the original roads designated by the states and approved by FHWA circa 1990, or (rarely) changes submitted by the states to FHWA post-1990. FHWA requires that the states allow at least 1 mile access distance to/from these roads, but the states are free to specify a longer access distance if they wish. Many states (especially in the west) have size limits for their entire state that equal or exceed this size of equipment in both width and length. In PC*MILER, these roads are considered to have "unlimited" access distance. Some states in the east restrict this equipment to designated roads, but allow unlimited access "by the shortest and/or most direct route" (or similar language), and roads in these states also have "unlimited" access distance.

- **State Oversize** – This category includes additional roads designated by the states since 1990, or which they have not submitted to FHWA for approval since 1990, to which the same access distance applies as to the National network in that state.

- **Oversize Access** – This category includes additional roads designated by the states to which a different (shorter, often zero) access distance applies. Usually these are county highways or local streets that lead all the way from the National Network and/or State Oversize network to the entrance to an industrial park, truck terminal, distribution center, factory, warehouse, etc.

Users will receive a "Not Designated" warning in the route window and the Detailed and Driver's reports if National Network and 53' Trailers or Twins are checked in Route Options, and

a. the route uses a road that is not designated National Network, State Oversize, or Oversize Access to go between roads that are designated National Network, State Oversize, or Oversize Access, OR

b. the route uses a road that is not designated National Network, State Oversize, or Oversize Access to access an origin, destination, or stop further than the distances specified in the regulations.

Allowable Distance by Jurisdiction

The table below shows the allowable distance (in miles) on truck access roads in North American jurisdictions, by PC*MILER road category as described above. Columns in the table are:

Column 1 - Jurisdiction abbreviation
Column 2 - Jurisdiction FIPS code
Column 3 - Access miles from National Network on US and State numbered highways
Column 4 - Access miles from National Network on all other roads
Column 5 - Access miles from State Oversize on US and State numbered highways
Column 6 - Access miles from State Oversize on all other roads
Column 7 - Access miles from Oversize Access

NOTE: "Unlimited access" in this table is as defined in the description of PC*MILER designated road categories above.

Jurisdiction Abbrev.	FIPS	3 - From Nat'l Netw on US & State Highways	4 - From Nat'l Netw on other roads	5 - From State Oversize on US & State Highways	6 – From State Oversize on other roads	7 – From Oversize Access
AL	1	1	1	1	1	0
AK	2	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
AZ	4	1	1	1	1	0
AR	5	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
CA	6	1	1	1	1	0
CO	8	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
CT	9	1	1	1	1	0
DE	10	1	1	1	1	0
DC	11	1	1	1	1	0
FL	12	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
GA	13	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
HI	15	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0

Jurisdiction Abbrev.	FIPS	3 - From Nat'l Netw on US & State Highways	4 - From Nat'l Netw on other roads	5 - From State Oversize on US & State Highways	6 – From State Oversize on other roads	7 – From Oversize Access
ID	16	1	1	1	1	0
IL	17	5	1	5	1	0
IN	18	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
IA	19	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
KS	20	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
KY	21	5	1	5	1	0
LA	22	10	10	10	10	0
ME	23	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
MD	24	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
MA	25	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
MI	26	5	1	5	1	0
MN	27	1	1	1	1	0
MS	28	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
MO	29	10	10	10	10	0
MT	30	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NE	31	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NV	32	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NH	33	1	1	1	1	0
NJ	34	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NM	35	20	20	20	20	0
NY	36	1	1	1	1	0
NC	37	3	3	3	3	0
ND	38	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
OH	39	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
OK	40	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
OR	41	1	1	1	1	0
PA	42	1	1	1	1	0
RI	44	1	1	1	1	0
SC	45	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
SD	46	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
TN	47	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
TX	48	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
UT	49	1	1	1	1	0
VT	50	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
VA	51	1	1	1	1	0
WA	53	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
WV	54	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
WI	55	15	15	15	15	0
WY	56	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0

Jurisdiction Abbrev.	FIPS	3 - From Nat'l Netw on US & State Highways	4 - From Nat'l Netw on other roads	5 - From State Oversize on US & State Highways	6 – From State Oversize on other roads	7 – From Oversize Access
PR	72	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NU	80	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
YT	81	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NT	82	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
BC	83	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
AB	84	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
SK	85	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
MB	86	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
ON	87	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
QC	88	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NB	89	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
PE	90	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NS	91	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NL	92	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
EM	93	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
BD	130	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
GL	131	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
BH	132	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
CS	133	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
ES	134	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
GT	135	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
HO	136	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NU	137	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
PM	138	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
AG	139	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
BJ	140	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
BS	141	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
CP	142	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
CH	143	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
CI	144	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
CU	145	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
CL	146	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
DF	147	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
DG	148	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
GR	149	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
GJ	150	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
HG	151	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
JA	152	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
MH	154	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0

Jurisdiction Abbrev.	FIPS	3 - From Nat'l Netw on US & State Highways	4 - From Nat'l Netw on other roads	5 - From State Oversize on US & State Highways	6 – From State Oversize on other roads	7 – From Oversize Access
MR	155	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NA	156	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NX	157	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
OA	158	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
PU	159	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
QA	160	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
QR	161	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
SI	162	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
SL	163	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
SO	164	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
TA	165	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
TM	166	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
TL	167	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
VZ	168	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
YC	169	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
ZT	170	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
ACT	200	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NSW	201	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NT	202	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
QLD	203	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
SA	204	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
TAS	205	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
VIC	206	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
WA	207	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0

Canadian Counties that are included in the PC*MILER database are listed below. Regional districts and other types of sub-divisions that exist within Canadian provinces and territories are not included in the database and therefore not listed.

Province	Counties
Alberta	*(No Counties)*
British Columbia	*(Contains a County)*
	CARIBOO
Manitoba	*(No Counties)*
New Brunswick	*(Contains Counties)*
	ALBERT
	CARLETON
	CHARLOTTE
	GLOUCESTER
	KENT
	KINGS
	MADAWASKA
	NORTHUMBERLAND
	QUEENS
	RESTIGOUCHE
	ST. JOHN
	SUNBURY
	VICTORIA
	WESTMORLAND
	YORK
Newfoundland and Labrador	*(No Counties)*
Northwest Territories	*(No Counties)*

Nova Scotia *(Contains Counties)*

ANNAPOLIS
ANTIGONISH
CAPE BRETON
COLCHESTER
CUMBERLAND
DIGBY
GUYSBOROUGH
HALIFAX
HANTS
INVERNESS
KINGS
LUNENBURG
PICTOU
QUEENS
RICHMOND
SHELBURNE
VICTORIA
YARMOUTH

Nunavut *(No Counties)*

Ontario *(Contains Counties)*

ALGOMA
BRANT
BRUCE
COCHRANE
DUFFERIN
DURHAM
ELGIN
ESSEX
FRONTENAC
GREY
HALDIMAND
HALIBURTON
HASTINGS
HURON
KENORA
KENT
LAMBTON
LANARK
MANITOULIN
MIDDLESEX
NIPISSING
NORFOLK
NORTHUMBERLAND

OTTAWA - CARLETON
OXFORD
PARRY SOUND
PERTH
PETERBOROUGH
PRINCE EDWARD
RAINY RIVER
RENFREW
SIMCOE
SUDBURY RM
THUNDER BAY
TIMISKAMING
TORONTO
VICTORIA
WELLINGTON

Prince Edward Island   *(Contains Counties)*

KINGS
PRINCE
QUEENS

Quebec   *(Contains Counties)*

ABITIBI-TEMISCAMINGUE
BAS-SAINT-LAURENT
CENTRE-DU-QUEBEC
CHAUDIERE-APPALACHES
COMMUNAUTE-URBAINE-DE-MONTREAL
COTE-NORD
ESTRIE
GASPESIE - ILES-DE-LA-MADELEINE
LA CÔTE-DE-BEAUPRÉ
LANAUDIERE
LAURENTIDES
LES JARDINS-DE-NAPIERVILLE
MAURICIE
MONTEREGIE
MONTREAL
OUTAOUAIS
QUEBEC
ROUVILLE
SAGUENAY - LAC-SAINT-JEAN

Saskatchewan   *(No Counties)*

Yukon   *(No Counties)*

States/Provinces in the U.S., Canada, and Mexico
(For countries and country abbreviations included in the North America region, see "North America" below under Country Codes For All Worldwide Regions)

States/Provinces in the United States & Canada

AL	Alabama
AK	Alaska
AB	Alberta
AZ	Arizona
AR	Arkansas
BC	British Columbia
CA	California
CO	Colorado
CT	Connecticut
DE	Delaware
DC	Dist. of Columbia
FL	Florida
GA	Georgia
ID	Idaho
IL	Illinois
IN	Indiana
IA	Iowa
KS	Kansas
KY	Kentucky
LA	Louisiana
ME	Maine
MB	Manitoba
MD	Maryland
MA	Massachusetts
MI	Michigan
MN	Minnesota
MS	Mississippi
MO	Missouri
MT	Montana

NE	Nebraska
NV	Nevada
NB	New Brunswick
NH	New Hampshire
NJ	New Jersey
NM	New Mexico
NY	New York
NL	Newfoundland & Labrador
NC	North Carolina
ND	North Dakota
NT	Northwest Territory
NS	Nova Scotia
NU*	Nunavut
OH	Ohio
OK	Oklahoma
ON	Ontario
OR	Oregon
PA	Pennsylvania
PE	Prince Edward Island
QC	Quebec
RI	Rhode Island
SK	Saskatchewan
SC	South Carolina
SD	South Dakota
TN	Tennessee
TX	Texas
UT	Utah
VT	Vermont
VA	Virginia
WA	Washington
WV	West Virginia
WI	Wisconsin
WY	Wyoming
YT	Yukon Territory

* The same FIPS code, NU, is used for Nicaragua and the province of Nunavut, Canada in the PC*MILER database.

Mexican Estados

AG	Aguascalientes
BJ	Baja California
BS	Baja California Sur
CP	Campeche
CH	Chiapas
CI	Chihuahua
CU	Coahuila de Zaragoza
CL	Colima
DF	Distrito Federal
DG	Durango
GJ	Guanajuato
GR	Guerrero
HG	Hidalgo
JA	Jalisco
EM	Mexico (Estado)
MH	Michoacan de Ocampo
MR	Morelos
NA	Nayarit
NX *	Nuevo Leon
OA	Oaxaca
PU	Puebla
QA	Queretaro Arteaga
QR	Quintana Roo
SL	San Luis Potosi
SI	Sinaloa
SO	Sonora
TA	Tabasco
TM	Tamaulipas
TL	Tlaxcala
VZ	Veracruz
YC	Yucatan
ZT	Zacatecas

* Please note that by default, "NX" is used for Nuevo Leon because the province of Newfoundland and Labrador in Canada already utilizes "NL" in the database. However, there is an option that sets "NL" as the abbreviation for Nuevo Leon: in the File application menu, select *Application Settings* . In the *NL Abbreviation* drop-down, select *Use for Nuevo Leon* and click **Save**.

Country Codes For All Worldwide Regions

Africa

COUNTRY NAME	FIPS	ISO2	ISO3	GENC2	GENC3
Algeria	AG	DZ	DZA	DZ	DZA
Angola	AO	AO	AGO	AO	AGO
Benin	BN	BJ	BEN	BJ	BEN
Botswana	BC	BW	BWA	BW	BWA
Burkina Faso	UV	BF	BFA	BF	BFA
Burundi	BY	BI	BDI	BI	BDI
Cameroon	CM	CM	CMR	CM	CMR
Cape Verde	CV	CV	CPV	CV	CPV
Central African Republic	CT	CF	CAF	CF	CAF
Chad	CD	TD	TCD	TD	TCD
Comoros	CN	KM	COM	KM	COM
Congo Democratic Republic (Kinshasa)	CG	CG	COD	CD	COD
Congo, Republic of the (Brazzaville)	CF	CD	COG	CG	COG
Djibouti	DJ	DJ	DJI	DJ	DJI
Egypt	EG	EG	EGY	EG	EGY
Equatorial Guinea	EK	GQ	GNQ	GQ	GNQ
Eritrea	ER	ER	ERI	ER	ERI
Ethiopia	ET	ET	ETH	ET	ETH
Gabon	GB	GA	GAB	GA	GAB
Gambia	GA	GM	GMB	GM	GMB
Ghana	GH	GH	GHA	GH	GHA
Guinea	GV	GN	GIN	GN	GIN
Guinea-Bissau	PU	GW	GNB	GW	GNB
Ivory Coast (Côte d'Ivoire)	IV	CI	CIV	CI	CIV
Kenya	KE	KE	KEN	KE	KEN
Lesotho	LT	LS	LSO	LS	LSO
Liberia	LI	LR	LBR	LR	LBR
Libya	LY	LY	LBY	LY	LBY
Madagascar	MA	MG	MDG	MG	MDG
Malawi	MI	MW	MWI	MW	MWI
Mali	ML	ML	MLI	ML	MLI
Mauritania	MR	MR	MRT	MR	MRT
Mauritius	MP	MU	MUS	MU	MUS
Mayotte	MF	YT	MYT	YT	MYT
Morocco	MO	MA	MAR	MA	MAR
Mozambique	MZ	MZ	MOZ	MZ	MOZ
Namibia	WA	NA	NAM	NA	NAM
Niger	NG	NE	NER	NE	NER
Nigeria	NI	NG	NGA	NG	NGA

COUNTRY NAME	FIPS	ISO2	ISO3	GENC2	GENC3
Reunion	RE	RE	REU	RE	REU
Rwanda	RW	RW	RWA	RW	RWA
Saint Helena	SH	SH	SHN	SH	SHN
Sao Tome and Principe	TP	ST	STP	ST	STP
Senegal	SG	SN	SEN	SN	SEN
Seychelles	SE	SC	SYC	SC	SYC
Sierra Leone	SL	SL	SLE	SL	SLE
Somalia	SO	SO	SOM	SO	SOM
South Africa	SF	ZA	ZAF	ZA	ZAF
South Sudan	OD	SD	SDW	SS	SSD
Sudan	SU	SD	SDN	SD	SDN
Swaziland	WZ	SZ	SWZ	SZ	SWZ
Tanzania	TZ	TZ	TZA	TZ	TZA
Togo	TO	TG	TGO	TG	TGO
Tunisia	TS	TN	TUN	TN	TUN
Uganda	UG	UG	UGA	UG	UGA
Western Sahara	WI	EH	ESH	EH	ESH
Zambia	ZA	ZM	ZMB	ZM	ZMB
Zimbabwe	ZI	ZW	ZWE	ZW	ZWE

Asia

COUNTRY NAME	FIPS	ISO2	ISO3	GENC2	GENC3
Bangladesh	BG	BD	BGD	BD	BGD
Bhutan	BT	BT	BTN	BT	BTN
British Indian Ocean Territory	IO	--	--	--	--
Brunei	BX	BN	BRN	BN	BRN
Burma (Myanmar)	BM	MM	MMR	MM	MMR
Cambodia	CB	KH	KHM	KH	KHM
China	CH	CN	CHN	CN	CHN
Guam	GQ	GU	GUM	GU	GUM
Hong Kong	HK	HK	HKG	HK	HKG
India	IN	IN	IND	IN	IND
Indonesia	ID	ID	IDN	ID	IDN
Japan	JA	JP	JPN	JP	JPN
Korea, North	KN	KP	PRK	KP	PRK
Korea, South	KS	KR	KOR	KR	KOR
Laos	LA	LA	LAO	LA	LAO
Macao	MC	MO	MAC	MO	MAC
Malaysia	MY	MY	MYS	MY	MYS
Maldives	MV	MV	MDV	MV	MDV
Mongolia	MG	MN	MNG	MN	MNG
Nepal	NP	NP	NPL	NP	NPL
Northern Mariana Islands	CQ	MP	MNP	MP	MNP

COUNTRY NAME	FIPS	ISO2	ISO3	GENC2	GENC3
Pakistan	PK	PK	PAK	PK	PAK
Palau	PS	PW	PLW	PW	PLW
Papua New Guinea	PP	PG	PNG	PG	PNG
Philippines	RP	PH	PHL	PH	PHL
Singapore	SN	SG	SGP	SG	SGP
Solomon Islands	BP	SB	SLB	SB	SLB
Sri Lanka	CE	LK	LKA	LK	LKA
Taiwan	TW	TW	TWN	TW	TWN
Thailand	TH	TH	THA	TH	THA
Timor-Leste	TT	--	TMP	TL	TMP
Vietnam	VM	VN	VNM	VN	VNM

Europe

COUNTRY NAME	FIPS	ISO2	ISO3	GENC2	GENC3
Akrotiri	AX	--	--	QZ	XQZ
Albania	AL	AL	ALB	AL	ALB
Armenia	AM	AM	ARM	AM	ARM
Andorra	AN	AND	AND	AD	AND
Austria	AU	A	AUT	AT	AUT
Azerbaijan	AJ	AZ	AZE	AZ	AZE
Belarus	BO	BY	BLR	BY	BLR
Belgium	BE	B	BEL	BE	BEL
Bosnia and Herzegovina	BK	BIH	BIH	BA	BIH
Bulgaria	BU	BG	BGR	BG	BGR
Croatia	HR	HR	HRV	HR	HRV
Cyprus	CY	CY	CYP	CY	CYP
Czech Republic	EZ	CZ	CZE	CZ	CZE
Denmark	DA	DK	DNK	DK	DNK
Dhekelia	DX	--	--	XD	XXD
Estonia	EN	EST	EST	EE	EST
Faroe Islands	FO	FO	FRO	FO	FRO
Finland	FI	FIN	FIN	FI	FIN
France	FR	FR	FRA	FR	FRA
Georgia	GG	GE	GEO	GE	GEO
Germany	GM	D	DEU	DE	DEU
Gibraltar	GI	GI	GIB	GI	GIB
Greece	GR	GR	GRC	GR	GRC
Guernsey	GK	--	--	GG	GGY
Hungary	HU	H	HUN	HU	HUN
Iceland	IC	IS	ISL	IS	ISL
Ireland	EI	IE	IRL	IE	IRL
Isle of Man	IM	--	IMN	IM	IMN
Italy	IT	I	ITA	IT	ITA

COUNTRY NAME	FIPS	ISO2	ISO3	GENC2	GENC3
Jersey	JE	--	--	JE	JEY
Kazakhstan	KZ	KZ	KAZ	KZ	KAZ
Kosovo	KV	--	XKS	XK	XKS
Kyrgyzstan	KG	KGZ	KGZ	KG	KGZ
Latvia	LG	LV	LVA	LV	LVA
Liechtenstein	LS	FL	LIE	LI	LIE
Lithuania	LH	LT	LTU	LT	LTU
Luxembourg	LU	L	LUX	LU	LUX
Macedonia	MK	MK	MKD	MK	MKD
Malta	MT	M	MLT	MT	MLT
Moldova	MD	MD	MDA	MD	MDA
Monaco	MN	MC	MCO	MC	MCO
Montenegro	MJ	MNE	MNE	ME	MNE
Netherlands	NL	NL	NLD	NL	NLD
Norway	NO	N	NOR	NO	NOR
Poland	PL	PL	POL	PL	POL
Portugal	PO	P	PRT	PT	PRT
Romania	RO	RO	ROU	RO	ROU
Russia	RS	RUS	RUS	RU	RUS
San Marino	SM	RSM	SMR	SM	SMR
Serbia	RI	SRB	SRB	RS	SRB
Slovakia	LO	SK	SVK	SK	SVK
Slovenia	SI	SLO	SVN	SI	SVN
Spain	SP	E	ESP	ES	ESP
Svalbard and Jan Mayen Islands	SV	SJ	SJM	XR	XSV
Sweden	SW	S	SWE	SE	SWE
Switzerland	SZ	CH	CHE	CH	CHE
Tajikistan	TI	TJ	TJK	TJ	TJK
Turkey	TU	TR	TUR	TR	TUR
Turkmenistan	TX	TM	TKM	TM	TKM
Ukraine	UP	UA	UKR	UA	UKR
United Kingdom	UK	GB	GBR	GB	GBR
Uzbekistan	UZ	UZ	UZB	UZ	UZB
Vatican City	VT	V	VAT	VA	VAT

Middle East

COUNTRY NAME	FIPS	ISO2	ISO3	GENC2	GENC3
Afghanistan	AF	AF	AFG	AF	AFG
Bahrain	BA	BH	BHR	BH	BHR
Gaza Strip	GZ	--	XGZ	XG	XGZ
Iran	IR	IR	IRN	IR	IRN
Iraq	IZ	IQ	IRQ	IQ	IRQ
Israel	IS	IL	ISR	IL	ISR

COUNTRY NAME	FIPS	ISO2	ISO3	GENC2	GENC3
Jordan	JO	JO	JOR	JO	JOR
Kuwait	KU	KW	KWT	KW	KWT
Lebanon	LE	LB	LBN	LB	LBN
Oman	MU	OM	OMN	OM	OMN
Palestinian Territory	--	PS	PSE	PS	PSE
Qatar	QA	QA	QAT	QA	QAT
Saudi Arabia	SA	SA	SAU	SA	SAU
Syria	SY	SY	SYR	SY	SYR
United Arab Emirates	AE	AE	ARE	AE	ARE
West Bank	WE	--	XWB	XW	XWB
Yemen	YM	YE	YEM	YE	YEM

North America

Canada	CA	CA	CAN	CA	CAN
Greenland	GL	GL	GRL	GL	GRL
Mexico	MX	MX	MEX	MX	MEX
Puerto Rico*	PR*	PR	PRI	PR	PRI
Saint Pierre and Miquelon	SB	PM	SPM	PM	SPM
United States	US	US	USA	US	USA
Virgin Islands, U.S.	VI	VI	VIR	VI	VIR

* Note: "PR" for Puerto Rico is a USPS code, not a FIPS code.

Oceania

American Samoa	AQ	AS	ASM	AS	ASM
Australia	AS	AU	AUS	AU	AUS
Cook Islands	CW	CK	COK	CK	COK
Fiji	FJ	FJ	FJI	FJ	FJI
French Polynesia	FP	PF	PYF	PJ	PYF
French Southern and Antarctic Islands	FS	TF	ATF	TF	ATF
Kiribati	KR	KI	KIR	KI	KIR
Marshall Islands	RM	MH	MHL	MH	MHL
Micronesia, Federated States of	FM	FM	FSM	FM	FSM
Midway Island	MQ	UM	--	QM	XMW
Nauru	NR	NR	NRU	NR	NRU
New Caledonia	NC	NC	NCL	NC	NCL
New Zealand	NZ	NZ	NZL	NZ	NZL
Niue	NE	NU	NIU	NU	NIU
Norfolk Island	NF	NF	NFK	NF	NFK
Pitcairn Islands	PC	PN	PCN	PN	PCN
Samoa (Western Samoa)	WS	WS	WSM	WS	WSM

COUNTRY NAME	FIPS	ISO2	ISO3	GENC2	GENC3
Tokelau	TL	TK	TKL	TK	TKL
Tonga	TN	TO	TON	TO	TON
Tuvalu	TV	TV	TUV	TV	TUV
Vanuatu	NH	VU	VUT	VU	VUT
Wake Island	WQ	WQ	XWK	QW	XWK
Wallis and Futuna	WF	WF	WLF	WF	WLF

South America

	FIPS	ISO2	ISO3	GENC2	GENC3
Anguilla	AV	AI	AIA	AI	AIA
Antigua and Barbuda	AC	AG	ATG	AG	ATG
Argentina	AR	AR	ARG	AR	ARG
Aruba	AA	AW	ABW	AW	ABW
Bahamas	BF	BS	BHS	BS	BHS
Barbados	BB	BB	BRB	BB	BRB
Belize	BH	BZ	BLZ	BZ	BLZ
Bermuda	BD	BM	BMU	BM	BMU
Bolivia	BL	BO	BOL	BO	BOL
Bonaire, Sint Eustatius, Saba	--	--	--	BQ	BES
Brazil	BR	BR	BRA	BR	BRA
Caribbean Netherlands	NT	AN	BES	BQ	BES
Cayman Islands	CJ	KY	CYM	KY	CYM
Chile	CI	CL	CHL	CL	CHL
Colombia	CO	CO	COL	CO	COL
Costa Rica	CS	CR	CRI	CR	CRI
Cuba	CU	CU	CUB	CU	CUB
Curacao	UC	--	--	CUW	CUW
Dominica	DO	DM	DMA	DM	DMA
Dominican Republic	DR	DO	DOM	DO	DOM
Ecuador	EC	EC	ECU	EC	ECU
El Salvador	ES	SV	SLV	SV	SLV
Falkland Islands (Islas Malvinas)	FK	FK	FLK	FK	FLK
French Guiana	FG	GF	GUF	GF	GUF
Grenada	GJ	GD	GRD	GD	GRD
Guadeloupe	GP	GP	GLP	GP	GLP
Guantanamo Bay	--	--	--	A2	AX2
Guatemala	GT	GT	GTM	GT	GTM
Guyana	GY	GY	GUY	GY	GUY
Haiti	HA	HT	HTI	HT	HTI
Honduras	HO	HN	HND	HN	HND
Jamaica	JM	JM	JAM	JM	JAM
Martinique	MB	MQ	MTQ	MQ	MTQ
Montserrat	MH	MS	MSR	MS	MSR

COUNTRY NAME	FIPS	ISO2	ISO3	GENC2	GENC3
Nicaragua*	NU*	NI	NIC	NI	NIC
Panama	PM	PA	PAN	PA	PAN
Paraguay	PA	PY	PRY	PY	PRY
Peru	PE	PE	PER	PE	PER
Saint Barthalemy	TB	--	BLM	BL	BLM
Saint Kitts and Nevis Islands	SC	KN	KNA	KN	KNA
Saint Lucia	ST	LC	LCA	LC	LCA
Saint Martin	RN	--	MAF	MF	MAF
Saint Vincent and the Grenadines	VC	VC	VCT	VC	VCT
Sint Maarten	NN	--	SXM	SX	SXM
Suriname	NS	SR	SUR	SR	SUR
Trinidad and Tobago	TD	TT	TTO	TT	TTO
Turks and Caicos Islands	TK	TC	TCA	TC	TCA
Uruguay	UY	UY	URY	UY	URY
Venezuela	VE	VE	VEN	VE	VEN
Virgin Islands, British	VG	VG	VGB	VG	VGB

* The same FIPS code, NU, is used for Nicaragua and the province of Nunavut, Canada in the PC*MILER database.

Official Sources

FIPS Country Codes:
http://geonames.nga.mil/ggmagaz/geonames4.asp and
http://www.state.gov/s/inr/rls/4250.htm

ISO2 Country Codes:
http://www.iso.org/iso/country_codes/iso_3166_code_lists/english_country_names_and_code_elements.htm and
http://www.iso.org/iso/english_country_names_and_code_elements#s

ISO 3 Country Codes:
http://unstats.un.org/unsd/methods/m49/m49alpha.htm

GENC2 and GENC3 Country Codes (Geopolitical Entities, Names and Codes):
Issued by the National Geospatial-Intelligence Agency
https://www1.nga.mil/Pages/default.aspx

For PC*MILER|Streets users, valid directional and street type abbreviations for street address entry in North America are listed below. Spelling out the whole word is also acceptable. Capitalization is not necessary.

Directional Synonyms for Address Entry – Prefix or Suffix

Full Spelling	Valid in PC*MILER
EAST	E
EAST	E.
NORTH	N
NORTH	N.
NORTH	NO
NORTH	NO.
NORTHEAST	N-E
NORTHEAST	N.E
NORTHEAST	N.E.
NORTHEAST	NE
NORTHEAST	NE.
NORTHEAST	NORTH-EAST
NORTHWEST	N-W
NORTHWEST	N.W
NORTHWEST.	N.W.
NORTHWEST	NORTH-WEST
NORTHWEST	NW
NORTHWEST	NW.
SOUTH	S
SOUTH	S.
SOUTH	SO
SOUTH	SO.
SOUTHEAST	S-E
SOUTHEAST	S.E
SOUTHEAST	S.E.
SOUTHEAST	SE
SOUTHEAST	SE.
SOUTHEAST	SOUTH-EAST
SOUTHWEST	S-W
SOUTHWEST	S.W
SOUTHWEST	S.W.
SOUTHWEST	SOUTH-WEST
SOUTHWEST	SW
SOUTHWEST	SW.
WEST	W
WEST	W.

Synonyms for Street Types

Full Spelling	Valid in PC*MILER
ALLEY	AL
ALLEY	AL.
ALLEY	ALL
ALLEY	ALL.
ALLEY	ALY
ALLEY	ALY.
ARCADE	ARC
ARCADE	ARC.
AVENUE	AV
AVENUE	AV.
AVENUE	AVDA
AVENUE	AVDA.
AVENUE	AVE
AVENUE	AVE.
AVENUE	AVEN
AVENUE	AVEN.
AVENUE	AVENIDA
AVENUE	AVENIDA.
AVENUE DES	AV DES
AVENUE DES	AV DES.
BASSIN	BAS
BASSIN	BAS.
BASSINS	BAS
BASSINS	BAS.
BEACH	BCH
BEACH	BCH.
BEND	BND
BEND	BND.
BERGE	BER
BERGE	BER.
BLUFFS	BLFS
BLUFFS	BLFS.
BOUCLE	BCLE
BOUCLE	BCLE.
BOULEVARD	BD
BOULEVARD	BD.
BOULEVARD	BL
BOULEVARD	BL.
BOULEVARD	BLVD
BOULEVARD	BLVD.
BOULEVARD	BOUL
BOULEVARD	BOUL.
BRIDGE	BRDG
BRIDGE	BRDG.
BRIDGE	BRG
BRIDGE	BRG.
BROOK	BRK
BROOK	BRK.
BROOKS	BRKS
BROOKS	BRKS.
BUTTE	BUT
BUTTE	BUT.
BYPASS	BYP
BYPASS	BYP.
CALE	CAL
CALE	CAL.
CAPE	CPE
CAPE	CPE.
CARREFOUR	CAR
CARREFOUR	CAR.
CARRIERE	CARE
CARRIERE	CARE.
CAUSEWAY	CAUSE
CAUSEWAY	CAUSE.
CAUSEWAY	CSWY
CAUSEWAY	CSWY.
CAVEE	CAV
CAVEE	CAV.
CENTER	CNTR
CENTER	CNTR.
CENTER	CTR
CENTER	CTR.
CHATEAU	CHA
CHATEAU	CHA.
CHEMIN	CH
CHEMIN	CH.
CHEMIN	CHE
CHEMIN	CHE.
CHEMINEMENT	CHEM
CHEMINEMENT	CHEM.
CIRCLE	CIR
CIRCLE	CIR.
CIRCLE	CIRC
CIRCLE	CIRC.
CIRCLES	CIRS
CIRCLES	CIRS.
CLIFFS	CLFS
CLIFFS	CLFS.
CITE	CIT
CITE	CIT.
CLOS	CL
CLOS	CL.
COLONEL	COL
COLONEL	COL.
COMMON	CMN
COMMON	CMN.
COMMONS	CMN
COMMONS	CMN.

COMMONS	CMNS	EXPRESSWAY	EXPR
COMMONS	CMNS.	EXPRESSWAY	EXPR.
CORNER	COR	EXPRESSWAY	EXPY
CORNER	COR.	EXPRESSWAY	EXPY.
CORNERS	CORS	EXPRESSWAY	EXWY
CORNERS	CORS.	EXPRESSWAY	EXWY.
CONTOUR	CTR	EXTENSION	EXT
CORNICHE	CORN	EXTENSION	EXT.
COTE	COT	EXTENSIONS	EXTS
COUR	C	EXTENSIONS	EXTS.
COUR	CR	FALLS	FLS
COURS	CRS	FALLS	FLS.
COURT	CRT	FARM-TO-MARKET	F-M
COURT	CRT.	FARM-TO-MARKET	FM
COURT	CT	FARM-TO-MARKET	FM.
COURT	CT.	FAUBOURG	FAUB
COURTS	CTS	FAUBOURG	FAUB.
COURTS	CTS.	FIELD	FLD
COVE	CV	FIELD	FLD.
COVE	CV.	FIELDS	FLDS
COVES	CVS	FIELDS	FLDS.
COVES	CVS.	FLATS	FLTS
CREEK	CRK	FLATS	FLTS.
CREEK	CRK.	FORKS	FRKS
CRESCENT	CRES	FORKS	FRKS.
CRESCENT	CRES.	FORUM	FORM
CRESCENT	CRESC	FREEWAY	FRWY
CRESCENT	CRESC.	FREEWAY	FRWY.
CRESCENT	CRESNT	FREEWAY	FWY
CREST	CRST	FREEWAY	FWY.
CREST	CRST.	GLEN	GLN
CROSSING	CRSG	GLEN	GLN.
CROSSING	CRSG.	GRAND BOULEVARD	GBD
CROSSING	XING	GRAND BOULEVARD	GBLVD
CROSSING	XING.	GREEN	GRN
CROSSROADS	XRDS	GREEN	GRN.
CROSSROADS	XRDS.	GREENS	GRNS
DESCENTE	DESC	GREENS	GRNS.
DRIVE	DR	GROVE	GRV
DRIVE	DR.	GROVE	GRV.
DRIVE	DRV	GROVES	GRVS
DRIVE	DRV.	GROVES	GRVS.
DRIVES	DRS	GRANDE RUE	GR
DRIVES	DRS.	GRIMPETTE	GRP
ENCLAVE	ENC	GRIMPETTE	GRP.
ENCLOS	ENC	HARBOR	HBR
ESPACE	ESP	HAVEN	HVN
ESPLANADE	ESP	HAVEN	HVN.
ESTATE	EST	HEIGHTS	HTS
ESTATE	EST.	HIGHWAY	HWY
ESTATES	ESTS	HIGHWAY	HWY.
ESTATES	ESTS.	HIGHWAY	HY

HIGHWAY	HY.	MANORS	MNRS
HIGHWAY	HIWAY	MANORS	MNRS.
HIGHWAY	HIWAY.	MEADOW	MDW
HILL	HL	MEADOW	MDW.
HILLS	HLS	MEADOWS	MDWS
HILLS	HLS.	MEADOWS	MDWS.
HOLLOW	HOLW	MILLS	MLS
HOLLOW	HOLW.	MILLS	MLS.
IMMEUBLE	IMM	MOTORWAY	MRWY
IMMEUBLE	IMM.	MOTORWAY	MRWY.
IMPASSE	IMP	MOTORWAY	MTRWY
IMPASSE	IMP.	MOTORWAY	MTRWY.
ISLAND	IS	MOTORWAY	MTWY
ISLAND	IS.	MOTORWAY	MTWY.
JARDIN	J	MOUNT	MT
KEY	KY	MOUNT	MT.
KEY	KY.	OVERPASS	OPAS
KEYS	KYS	OVERPASS	OPAS.
KEYS	KYS.	OVERPASS	OVER
KNOLL	KNL	OVERPASS	OVER.
KNOLL	KNL.	OVERPASS	OVPS
KNOLLS	KNLS	OVERPASS	OVPS.
KNOLLS	KNLS.	OVERPASS	OVRPS
LAKES	LKS	OVERPASS	OVRPS.
LAKES	LKS.	PARK	PK
LAND	LAND	PARK	PK.
LAND	LAND.	PARK	PRK
LANDING	LNDG	PARK	PRK.
LANDING	LNDG.	PARKWAY	PKY
LANE	LA	PARKWAY	PKY.
LANE	LA.	PARKWAY	PKW
LANE	LN	PARKWAY	PKW.
LANE	LN.	PARKWAY	PKWY
LEVEE	LEV	PARKWAY	PKWY.
LIEU DIT	L-D	PARKWAY	PKWAY
LIEU DIT	LD	PARKWAY	PKWAY.
LIEU DIT	LIEU	PARKWAY	PRKWY
LIEU-DIT	L-D	PARKWAY	PRKWY.
LIEU-DIT	LD	PARVIS	PAR
LIEU-DIT	LIEU	PASEO	PSO
LIGHTS	LGTS	PASS	PS
LIGHTS	LGTS.	PASS	PS.
LOCKS	LCKS	PASSAGE	PASS
LOCKS	LCKS.	PATH	PTH
LOOP	LP	PATH	PTH.
LOOP	LP.	PETITE AVENUE	PTA
LOTISSEMENT	LOT	PETITE IMPASSE	PTI
LOTISSEMENT	LOT.	PETITE ROUTE	PRT
MALL	ML	PETITE RUE	PTR
MALL	ML.	PIKE	PKE
MANOR	MNR	PIKE	PKE.
MANOR	MNR.	PINE	PNE

PINE	PNE.	ROND POINT	RP.
PINES	PNES	ROND-POINT	ROND
PINES	PNES.	ROND-POINT	RP
PLACE	PL	ROND-POINT	RP.
PLACE	PL.	ROTONDE	ROT
PLACE	PLA	ROTONDE	RTD
PLACE	PLA.	ROUTE	RTE
PLACE	PLAC	RUE	R
PLACE	PLAC.	RUE	R.
PLACE	PLC	RUE DE	RUE
PLACE	PLC.	SENTIER	SENT
PLAINS	PLNS	SENTIER	SENT.
PLAINS	PLNS.	SHOALS	SHLS
PLAZA	PLZ	SHOALS	SHLS.
PLAZA	PLZ.	SHORES	SHRS
POINT	PNT	SHORES	SHRS.
POINT	PNT.	SKYWAY	SKWY
POINT	PT	SKYWAY	SKWY.
POINT	PT.	SPRINGS	SPGS
POINTS	PTS	SPRINGS	SPGS.
POINTS	PTS.	SQUARE	SQ
PORTE	PTE	SQUARE	SQ.
POURTOUR	POUR	SQUARE	SQR
POURTOUR	POUR.	SQUARE	SQR.
PRAIRIE	PR	SQUARES	SQS
PRAIRIE	PR.	SQUARES	SQS.
PROMENADE	PROM	STRASSE	STR
QUAI	Q	STRASSE	STR.
QUAI	Q.	STREET	ST
QUARTIER	QUA	STREET	ST.
RACCOURCI	RAC	STREET	STR
RACCOURCI	RAC.	STREET	STR.
RAMP	RMP	STREETS	STS
RAMP	RMP.	STREETS	STS.
RAMPE	RPE	TERRACE	TER
RAPIDS	RPDS	TERRACE	TER.
RAPIDS	RPDS.	TERRACE	TERR
REMPART	REM	TERRACE	TERR.
RESIDENCE	RES	TERRACE	TRC
RESIDENCE	RES.	TERRACE	TRC.
RIDGE	RDG	TERRASSE	TER
RIDGE	RDG.	TERTRE	TRT
RIDGES	RDGS	THROUGHWAY	THRUWAY
RIDGES	RDGS.	THROUGHWAY	THWY
ROAD	RD	THROUGHWAY	THWY.
ROAD	RD.	TOUR	TR
ROADS	RDS	TOUR	TR.
ROADS	RDS.	TRACK	TRAK
ROCADE	ROC	TRACK	TRAK.
ROCADE	ROC.	TRAFFICWAY	TFCWY
ROND POINT	ROND	TRAFFICWAY	TFCWY.
ROND POINT	RP	TRAFFICWAY	TFWY

TRAFFICWAY	TFWY.	VENELLE	VEN
TRAFFICWAY	TRFY	VIEILLE ROUTE	VRTE
TRAFFICWAY	TRFY.	VIEUX CHEMIN	VCHE
TRAFFICWAY	TRWY	VIEW	VW
TRAFFICWAY	TRWY.	VIEW	VW.
TRAIL	TRL	VIEWS	VWS
TRAIL	TRL.	VIEWS	VWS.
TRAILER	TRLR	VILLAGE	VGE
TRAILER	TRLR.	VILLAGE	VLG
TRAVERSE	TRA	VILLAGE	VLG.
TUNNEL	TUN	VILLAGES	VLGS
TUNNEL	TUN.	VILLAGES	VLGS.
TUNNEL	TUNL	VOIE	V
TUNNEL	TUNL.	WAY	WY
TUNNEL	TUNN	WAY	WY.
TUNNEL	TUNN.	WAYS	WAYS
TURNPIKE	TPK	WAYS	WAYS.
TURNPIKE	TPK.	WELLS	WLS
TURNPIKE	TPKE	WELLS	WLS.
TURNPIKE	TPKE.	ZONE ARTISANALE	ZA
UNDERPASS	UNP	ZONE D'ACTIVITE	Z.A.
UNDERPASS	UNP.	ZONE D'ACTIVITE	ZA.
UNDERPASS	UNPS	ZONE INDUSTRIELLE	Z.I
UNDERPASS	UNPS.	ZONE INDUSTRIELLE	Z.I.
UNDERPASS	UNRPS	ZONE INDUSTRIELLE	ZI
UNDERPASS	UNRPS.		
UNDERPASS	UPAS		
UNDERPASS	UPAS.		

The table below lists PC*MILER default road speeds worldwide by jurisdiction and PC*MILER road category. Speeds are in miles per hour. To see default speeds for any world region, you can also open the Route Options dialog, select a world region, then click the **Road Speeds** tab and select a country from the pick list.

Region	State	FIPS	Interstate Highway		Divided Highway		Primary Highway		Secondary Highway		Local		Ferries	
			Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Africa	Algeria	AG	62	56	56	43	50	31	37	25	25	18	26	26
Africa	Angola	AO	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Botswana	BC	50	45	40	35	35	30	30	25	20	15	21	21
Africa	Benin	BN	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Burundi	BY	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Chad	CD	50	45	40	35	35	30	30	25	20	15	21	21
Africa	Congo	CF	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Republic of Congo	CG	50	45	40	35	35	30	30	25	20	15	23	23
Africa	Cameroon	CM	50	45	40	35	35	30	30	25	20	15	21	21
Africa	Comoros	CN	50	45	40	35	35	30	30	25	20	15	15	15
Africa	Central African Republic	CT	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Cape Verde	CV	50	45	40	35	35	30	30	25	20	15	23	23
Africa	Djibouti	DJ	50	45	40	35	35	30	30	25	20	15	21	21
Africa	Egypt	EG	62	56	56	43	37	31	25	25	18	12	27	27
Africa	Equatorial Guinea	EK	50	45	40	35	35	30	30	25	20	15	21	21
Africa	Eritrea	ER	50	45	40	35	35	30	30	25	20	15	21	21
Africa	Ethiopia	ET	62	56	56	43	50	31	37	25	25	18	18	18

Region	State	FIPS	Interstate Highway		Divided Highway		Primary Highway		Secondary Highway		Local		Ferries	
			Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Africa	Gambia	GA	50	45	40	35	35	30	30	25	20	15	21	21
Africa	Gabon	GB	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Ghana	GH	62	56	56	43	50	31	37	25	25	18	21	21
Africa	Guinea	GV	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Ivory Coast	IV	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Kenya	KE	62	56	56	43	50	31	37	25	25	18	21	21
Africa	Liberia	LI	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Lesotho	LT	50	45	40	35	35	30	30	25	20	15	23	23
Africa	Libya	LY	50	45	40	35	35	30	30	25	20	15	26	26
Africa	Madagascar	MA	50	45	40	35	35	30	30	25	20	15	15	15
Africa	Mayotte	MF	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Malawi	MI	62	56	56	43	50	31	37	25	25	18	21	21
Africa	Mali	ML	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Morocco	MO	62	56	56	43	50	31	37	25	25	18	26	26
Africa	Mauritius	MP	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Mauritania	MR	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Mozambique	MZ	50	45	40	35	35	30	30	25	20	15	21	21
Africa	Niger	NG	50	45	40	35	35	30	30	25	20	15	21	21
Africa	Nigeria	NI	62	56	56	43	50	31	37	25	25	18	21	21
Africa	South Sudan	OD	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Guinea-Bissau	PU	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Reunion	RE	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Rwanda	RW	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Seychelles	SE	50	45	40	35	35	30	30	25	20	15	18	18
Africa	South Africa	SF	68	62	56	43	50	31	37	25	25	18	24	24
Africa	Senegal	SG	50	45	40	35	35	30	30	25	20	15	21	21
Africa	Saint Helena	SH	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Sierra Leone	SL	50	45	40	35	35	30	30	25	20	15	18	18

Region	State	FIPS	Interstate Highway		Divided Highway		Primary Highway		Secondary Highway		Local		Ferries	
			Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Africa	Somalia	SO	50	45	40	35	35	30	30	25	20	15	21	21
Africa	Sudan	SU	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Togo	TO	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Sao Tome and Principe	TP	50	45	40	35	35	30	30	25	20	15	21	21
Africa	Tunisia	TS	62	56	56	43	50	31	37	25	25	18	26	26
Africa	Tanzania	TZ	62	56	56	43	50	31	37	25	25	18	23	23
Africa	Uganda	UG	62	56	56	43	50	31	37	25	25	18	23	23
Africa	Burkina Faso	UV	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Namibia	WA	50	45	40	35	35	30	30	25	20	15	21	21
Africa	Western Sahara	WI	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Swaziland	WZ	50	45	40	35	35	30	30	25	20	15	18	18
Africa	Zambia	ZA	50	45	40	35	35	30	30	25	20	15	21	21
Africa	Zimbabwe	ZI	62	56	50	43	43	31	37	25	25	18	23	23
Asia	Bangladesh	BG	50	50	50	43	43	31	31	18	25	12	21	21
Asia	Burma (Myanmar)	BM	50	50	50	43	43	31	31	18	25	12	21	21
Asia	Bhutan	BT	50	50	50	43	43	31	31	18	25	12	16	16
Asia	British Indian Ocean Territory	IO	50	43	43	37	37	31	31	25	25	18	18	18
Asia	Brunei Darussalam	BX	50	50	50	43	43	31	31	18	25	12	18	18
Asia	Cambodia	CB	56	56	56	50	43	31	31	25	25	18	18	18
Asia	Sri Lanka	CE	50	50	50	43	43	31	31	18	25	12	22	22
Asia	China	CH	68	62	56	50	50	31	37	18	25	12	27	27
Asia	Guam	GQ	45	45	45	35	35	35	35	25	25	18	18	18
Asia	Hong Kong	HK	31	31	31	31	25	25	18	18	12	12	27	27
Asia	Indonesia	ID	50	50	50	43	43	31	31	18	25	12	27	27
Asia	India	IN	62	49	49	37	43	31	31	18	25	12	22	22
Asia	Japan	JA	62	56	50	43	37	31	31	18	25	12	26	26
Asia	Korea, North	KN	56	56	56	50	43	31	31	25	25	18	21	21

Region	State	FIPS	Interstate Highway		Divided Highway		Primary Highway		Secondary Highway		Local		Ferries	
			Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Asia	**Korea, South**	**KS**	56	56	56	50	43	31	31	25	25	18	21	21
Asia	**Lao People's Democratic Republic**	**LA**	56	56	56	50	43	31	31	25	25	18	16	16
Asia	**Macao**	**MC**	50	50	50	43	43	31	31	18	25	12	27	27
Asia	**Mongolia**	**MG**	56	56	56	50	43	31	31	25	25	18	16	16
Asia	**Maldives**	**MV**	56	56	56	50	43	31	31	25	25	18	22	22
Asia	**Malaysia**	**MY**	50	50	50	43	43	31	31	18	25	12	27	27
Asia	**Nepal**	**NP**	50	50	50	43	43	31	31	18	25	12	16	16
Asia	**Northern Mariana Islands**	**CQ**	50	43	43	37	37	31	31	25	25	18	15	15
Asia	**Pakistan**	**PK**	56	56	56	50	43	31	31	25	25	18	21	21
Asia	**Palau**	**PS**	50	43	43	37	37	31	31	25	25	18	15	15
Asia	**Papua New Guinea**	**PP**	50	50	50	43	43	31	31	18	25	12	18	18
Asia	**Philippines**	**RP**	50	50	50	43	43	31	31	18	25	12	25	25
Asia	**Singapore**	**SN**	56	56	56	50	43	31	31	25	25	18	27	27
Asia	**Solomon Islands**	**BP**	50	43	43	37	37	31	31	25	25	18	18	18
Asia	**Thailand**	**TH**	50	50	50	43	43	31	31	18	25	12	21	21
Asia	**East Timor**	**TT**	50	50	50	43	43	31	31	18	25	12	18	18
Asia	**Taiwan**	**TW**	50	50	50	43	43	31	31	18	25	12	25	25
Asia	**Vietnam**	**VM**	50	50	50	43	43	31	31	18	25	12	21	21
Europe	**Albania**	**AL**	50	43	40	31	31	25	25	16	18	12	16	16
Europe	**Andorra**	**AN**	50	43	40	31	31	25	25	16	18	12	16	16
Europe	**Armenia**	**AM**	56	56	56	50	43	31	31	25	25	18	16	16
Europe	**Austria**	**AU**	50	50	34	31	34	25	25	16	18	12	16	16
Europe	**Azerbaijan**	**AJ**	56	56	56	50	43	31	31	25	25	18	20	20
Europe	**Belgium**	**BE**	56	56	45	31	30	25	25	16	18	12	16	16
Europe	**Bosnia and Herzegovina**	**BK**	62	43	50	31	39	25	25	16	18	12	16	16
Europe	**Belarus**	**BO**	62	56	40	31	39	25	25	16	18	12	16	16

Region	State	FIPS	Interstate Highway		Divided Highway		Primary Highway		Secondary Highway		Local		Ferries	
			Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Europe	Bulgaria	BU	62	62	34	31	34	25	25	16	18	12	16	16
Europe	Cyprus	CY	56	56	56	50	43	31	31	25	25	18	25	25
Europe	Denmark	DA	50	50	34	31	34	25	25	16	18	12	16	16
Europe	Ireland	EI	50	50	40	31	39	25	25	16	18	12	16	16
Europe	Estonia	EN	56	43	45	31	45	25	25	16	18	12	16	16
Europe	Czech Republic	EZ	50	50	40	31	39	25	25	16	18	12	16	16
Europe	Finland	FI	50	50	40	31	39	25	25	16	18	12	16	16
Europe	Faroe Islands	FO	50	43	40	31	31	25	25	16	18	12	16	16
Europe	France	FR	56	43	40	31	31	25	25	16	18	12	16	16
Europe	Georgia	GG	56	56	56	50	43	31	31	25	25	18	20	20
Europe	Gibraltar	GI	50	43	40	31	31	25	25	16	18	12	16	16
Europe	Germany	GM	50	43	35	31	30	25	25	16	18	12	16	16
Europe	Greece	GR	43	43	34	31	34	25	25	16	18	12	16	16
Europe	Croatia	HR	50	50	34	31	34	25	25	16	18	12	16	16
Europe	Cyprus	CY	56	56	56	50	43	31	31	25	25	18	25	25
Europe	Hungary	HU	50	43	40	31	31	25	25	16	18	12	16	16
Europe	Iceland	IC	50	43	40	31	31	25	25	16	18	12	16	16
Europe	Isle of Man	IM	50	43	40	31	31	25	25	16	18	12	16	16
Europe	Italy	IT	50	43	35	31	34	25	25	16	18	12	16	16
Europe	Kosovo	KV	50	50	34	31	34	30	25	16	18	12	16	16
Europe	Kazakhstan	KZ	50	43	40	31	31	25	25	16	18	12	16	16
Europe	Kyrgyzstan	KG	56	56	56	50	43	31	31	25	25	18	16	16
Europe	Latvia	LG	50	50	40	31	39	25	25	16	18	12	16	16
Europe	Lithuania	LH	50	43	40	31	31	25	25	16	18	12	16	16
Europe	Slovakia	LO	50	50	40	37	39	30	25	16	18	12	16	16
Europe	Liechtenstein	LS	50	43	40	31	31	25	25	16	18	12	16	16
Europe	Luxembourg	LU	56	56	38	31	38	25	25	16	18	12	16	16
Europe	Moldavia	MD	50	43	40	31	31	25	25	16	18	12	16	16

Region	State	FIPS	Interstate Highway		Divided Highway		Primary Highway		Secondary Highway		Local		Ferries	
			Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Europe	Montenegro	MJ	50	43	40	31	31	25	25	16	18	12	16	16
Europe	Macedonia	MK	43	43	34	31	34	25	25	16	18	12	16	16
Europe	Monaco	MN	50	43	40	31	31	25	25	16	18	12	16	16
Europe	Malta	MT	50	43	40	31	31	25	25	16	18	12	16	16
Europe	Netherlands	NL	50	50	40	31	39	25	25	16	18	12	16	16
Europe	Norway	NO	50	50	40	31	39	25	25	16	18	12	16	16
Europe	Poland	PL	50	50	40	31	34	25	25	16	18	12	16	16
Europe	Portugal	PO	50	50	34	25	34	20	25	16	18	12	16	16
Europe	Serbia	RI	50	50	34	31	34	30	25	16	18	12	16	16
Europe	Romania	RO	56	56	40	31	34	25	25	16	18	12	16	16
Europe	Russian Federation	RS	62	56	40	31	39	25	25	16	18	12	16	16
Europe	Slovenia	SI	50	50	34	31	34	25	25	16	18	12	16	16
Europe	San Marino	SM	50	43	40	31	31	25	25	16	18	12	16	16
Europe	Spain	SP	56	43	40	31	34	25	25	16	18	12	16	16
Europe	Svalbard and Jan Mayen Islands	SV	50	43	40	31	31	25	25	16	18	12	16	16
Europe	Sweden	SW	50	50	40	31	39	25	25	16	18	12	16	16
Europe	Switzerland	SZ	50	50	40	31	39	25	25	16	18	12	16	16
Europe	Tajikistan	TI	50	43	40	31	31	25	25	16	18	12	16	16
Europe	Turkey	TU	62	56	40	31	39	25	25	16	18	12	16	16
Europe	Turkmenistan	TX	56	56	56	50	43	31	31	25	25	18	20	20
Europe	United Kingdom	UK	60	40	46	30	32	24	25	16	18	12	16	16
Europe	Ukraine	UP	62	56	40	31	39	25	25	16	18	12	16	16
Europe	Uzbekistan	UZ	50	43	40	31	31	25	25	16	18	12	16	16
Europe	Vatican City	VT	50	43	40	31	31	25	25	16	18	12	16	16
Middle East	Afghanistan	AF	56	56	56	50	43	31	31	25	25	18	16	16
Middle East	Bahrain	BA	56	56	56	50	43	31	31	25	25	18	25	25
Middle East	Gaza Strip	GZ	56	56	56	50	43	31	31	25	25	18	25	25

Region	State	FIPS	Interstate Highway		Divided Highway		Primary Highway		Secondary Highway		Local		Ferries	
			Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Middle East	Iran (Islamic Republic of)	IR	56	56	56	50	43	31	31	25	25	18	25	25
Middle East	Iraq	IZ	56	56	56	50	43	31	31	25	25	18	21	21
Middle East	Israel	IS	56	56	56	50	43	31	31	25	25	18	25	25
Middle East	Jordan	JO	56	56	56	50	43	31	31	25	25	18	16	16
Middle East	Kuwait	KU	56	56	56	50	43	31	31	25	25	18	20	20
Middle East	Lebanon	LE	56	56	56	50	43	31	31	25	25	18	25	25
Middle East	Oman	MU	56	56	56	50	43	31	31	25	25	18	21	21
Middle East	Palestinian Territory	--	56	56	56	50	43	31	31	25	25	18	25	25
Middle East	Qatar	QA	56	56	56	50	43	31	31	25	25	18	25	25
Middle East	Saudi Arabia	SA	62	56	56	43	37	31	31	18	25	12	25	25
Middle East	Syrian Arab Republic	SY	56	56	56	50	43	31	31	25	25	18	16	16
Middle East	United Arab Emirates	AE	68	62	62	56	50	37	37	25	25	18	27	27
Middle East	West Bank	WE	56	56	56	50	43	31	31	25	25	18	25	25
Middle East	Yemen	YM	56	56	56	50	43	31	31	25	25	18	21	21
N. America	Alberta	AB	62	62	62	43	56	37	43	37	31	25	21	21
N. America	Aguascalientes	AG	68	62	56	43	49	37	43	31	31	25	23	23
N. America	Alaska	AK	65	55	55	40	45	35	45	35	30	25	17	17
N. America	Alabama	AL	68	60	55	40	45	35	45	35	30	25	15	15
N. America	Arkansas	AR	65	55	55	40	45	35	45	35	35	25	15	15
N. America	Arizona	AZ	68	60	60	40	50	35	45	35	35	25	15	15
N. America	British Columbia	BC	68	62	62	37	56	37	43	37	31	25	21	21
N. America	Baja California	BJ	68	62	56	43	49	37	43	31	31	25	23	23
N. America	Baja California Sur	BS	68	62	56	43	49	37	43	31	31	25	23	23
N. America	California	CA	55	55	55	40	45	30	40	30	30	25	16	16
N. America	Chiapas	CH	68	62	56	43	49	37	43	31	31	25	23	23
N. America	Chihuahua	CI	68	62	56	43	49	37	43	31	31	25	23	23
N. America	Colima	CL	68	62	56	43	49	37	43	31	31	25	23	23

Region	State	FIPS	Interstate Highway		Divided Highway		Primary Highway		Secondary Highway		Local		Ferries	
			Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
N. America	Colorado	CO	68	60	60	40	50	35	45	35	35	25	15	15
N. America	Campeche	CP	68	62	56	43	49	37	43	31	31	25	23	23
N. America	Connecticut	CT	65	55	55	40	45	30	35	30	25	25	13	13
N. America	Coahuila de Zaragoza	CU	68	62	56	43	49	37	43	31	31	25	23	23
N. America	Dist. of Columbia	DC	55	50	45	40	40	35	35	30	25	25	13	13
N. America	Delaware	DE	65	55	55	40	45	30	35	30	25	25	13	13
N. America	Distrito Federal	DF	62	62	43	43	37	37	31	31	25	25	23	23
N. America	Durango	DG	68	62	56	43	49	37	43	31	31	25	23	23
N. America	Mexico (Estado)	EM	68	62	56	43	49	37	43	31	31	25	23	23
N. America	Florida	FL	68	60	55	40	45	35	45	35	30	25	13	13
N. America	Georgia	GA	68	60	55	40	45	35	40	30	30	25	13	13
N. America	Guanajuato	GJ	68	62	56	43	49	37	43	31	31	25	23	23
N. America	Greenland	GL	45	45	45	35	35	35	35	25	25	20	13	13
N. America	Guerrero	GR	68	62	56	43	49	37	43	31	31	25	23	23
N. America	Hidalgo	HG	68	62	56	43	49	37	43	31	31	25	23	23
N. America	Hawaii	HI	60	50	45	35	35	35	25	25	25	25	13	13
N. America	Iowa	IA	68	55	60	40	45	35	45	35	35	25	15	15
N. America	Idaho	ID	65	60	60	40	50	35	45	35	35	25	15	15
N. America	Illinois	IL	65	55	55	40	45	35	45	35	35	25	15	15
N. America	Indiana	IN	65	55	55	40	45	35	40	30	30	25	15	15
N. America	Jalisco	JA	68	62	56	43	49	37	43	31	31	25	23	23
N. America	Kansas	KS	68	60	60	40	50	35	45	35	35	25	15	15
N. America	Kentucky	KY	65	60	55	40	45	35	40	30	30	25	15	15
N. America	Louisiana	LA	68	60	55	40	45	35	45	35	35	25	15	15
N. America	Massachusetts	MA	65	60	55	40	45	30	35	30	25	25	13	13
N. America	Manitoba	MB	68	62	62	43	56	37	43	37	31	25	21	21
N. America	Maryland	MD	65	60	55	40	45	30	35	30	25	25	13	13
N. America	Maine	ME	65	60	60	40	45	35	45	35	30	25	13	13

Region	State	FIPS	Interstate Highway		Divided Highway		Primary Highway		Secondary Highway		Local		Ferries	
			Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
N. America	Michoacan de Ocampo	MH	68	62	56	43	49	37	43	31	31	25	23	23
N. America	Michigan	MI	60	55	55	40	45	35	40	30	30	25	18	18
N. America	Minnesota	MN	68	60	60	40	45	35	45	35	35	25	15	15
N. America	Missouri	MO	68	60	60	40	45	35	45	35	35	25	15	15
N. America	Morelos	MR	68	62	56	43	49	37	43	31	31	25	23	23
N. America	Mississippi	MS	68	60	55	40	45	35	45	35	30	25	15	15
N. America	Montana	MT	65	60	60	40	50	35	45	35	35	25	15	15
N. America	Nayarit	NA	68	62	56	43	49	37	43	31	31	25	23	23
N. America	New Brunswick	NB	62	62	56	43	56	37	43	31	31	25	21	21
N. America	North Carolina	NC	68	60	55	40	45	35	40	30	30	25	13	13
N. America	North Dakota	ND	68	60	60	40	50	35	45	35	35	25	15	15
N. America	Nebraska	NE	68	60	60	40	50	35	45	35	35	25	15	15
N. America	New Hampshire	NH	65	60	55	40	45	35	45	35	30	25	13	13
N. America	New Jersey	NJ	65	55	55	40	45	30	35	30	25	25	13	13
N. America	Newfoundland and Labrador	NL	62	62	62	43	56	37	43	31	31	25	21	21
N. America	New Mexico	NM	68	60	60	40	50	35	45	35	35	25	15	15
N. America	Nova Scotia	NS	62	62	62	43	56	37	43	31	31	25	21	21
N. America	Northwest Territory	NT	56	56	56	43	56	37	43	31	31	25	21	21
N. America	Nunavut	NU	59	50	41	27	27	18	23	14	16	9	5	5
N. America	Nevada	NV	68	60	60	40	50	35	45	35	35	25	21	21
N. America	Nuevo Leon	NX	68	62	56	43	49	37	43	31	31	25	23	23
N. America	New York	NY	65	60	55	40	45	30	35	30	25	25	13	13
N. America	Oaxaca	OA	68	62	56	43	49	37	43	31	31	25	23	23
N. America	Ohio	OH	65	60	55	40	45	35	40	30	30	25	15	15
N. America	Oklahoma	OK	68	60	60	40	50	35	45	35	35	25	15	15
N. America	Ontario	ON	62	62	62	43	49	37	43	31	31	25	21	21
N. America	Oregon	OR	55	55	50	40	45	35	40	30	30	25	16	16

Region	State	FIPS	Interstate Highway		Divided Highway		Primary Highway		Secondary Highway		Local		Ferries	
			Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
N. America	**Pennsylvania**	**PA**	65	55	55	40	45	30	35	30	25	25	13	13
N. America	**Prince Edward Island**	**PE**	62	62	56	43	56	37	49	37	31	25	21	21
N. America	**Puerto Rico**	**PR**	65	55	45	40	45	30	30	30	30	25	15	15
N. America	**Puebla**	**PU**	68	62	56	43	49	37	43	31	31	25	23	23
N. America	**Queretaro Arteaga**	**QA**	68	62	56	43	49	37	43	31	31	25	23	23
N. America	**Quebec**	**QC**	62	62	56	37	56	37	49	37	31	25	21	21
N. America	**Quintana Roo**	**QR**	68	62	56	43	49	37	43	31	31	25	23	23
N. America	**Rhode Island**	**RI**	65	55	55	40	45	30	35	30	25	25	13	13
N. America	**South Carolina**	**SC**	68	60	55	40	45	35	40	30	30	25	13	13
N. America	**South Dakota**	**SD**	68	60	60	40	50	35	45	35	35	25	15	15
N. America	**Sinaloa**	**SI**	68	62	56	43	49	37	43	31	31	25	23	23
N. America	**Saskatchewan**	**SK**	62	62	62	43	56	37	43	37	31	25	21	21
N. America	**San Luis Potosi**	**SL**	68	62	56	43	49	37	43	31	31	25	23	23
N. America	**Sonora**	**SO**	68	62	56	43	49	37	43	31	31	25	23	23
N. America	**Tabasco**	**TA**	68	62	56	43	49	37	43	31	31	25	23	23
N. America	**Tlaxcala**	**TL**	68	62	56	43	49	37	43	31	31	25	23	23
N. America	**Tamaulipas**	**TM**	68	62	56	43	49	37	43	31	31	25	23	23
N. America	**Tennessee**	**TN**	68	60	55	40	45	35	40	30	30	25	15	15
N. America	**Texas**	**TX**	68	60	60	40	50	35	45	35	35	25	15	15
N. America	**Utah**	**UT**	68	60	60	40	50	35	45	35	35	25	15	15
N. America	**Virginia**	**VA**	65	60	55	40	45	30	40	30	30	25	13	13
N. America	**Vermont**	**VT**	65	55	55	40	45	35	45	35	30	25	15	15
N. America	**Veracruz**	**VZ**	68	62	56	43	49	37	43	31	31	25	23	23
N. America	**Virgin Islands, U.S.**	**VI**	56	43	43	37	37	31	31	25	18	18	24	24
N. America	**Washington**	**WA**	60	60	55	40	45	30	35	30	30	25	16	16
N. America	**Wisconsin**	**WI**	65	60	60	40	45	35	45	35	35	25	18	18
N. America	**West Virginia**	**WV**	68	55	55	40	45	35	35	30	30	25	15	15
N. America	**Wyoming**	**WY**	68	60	60	40	50	35	45	35	35	25	15	15

Region	State	FIPS	Interstate Highway		Divided Highway		Primary Highway		Secondary Highway		Local		Ferries	
			Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
N. America	Yucatan	YC	68	62	56	43	49	37	43	31	31	25	23	23
N. America	Yukon Territory	YT	56	56	56	43	56	37	49	37	31	25	21	21
N. America	Zacatecas	ZT	68	62	56	43	49	37	43	31	31	25	23	23
Oceania	American Samoa	AQ	50	43	43	37	37	31	31	25	25	18	18	18
Oceania	Australia	AS	68	56	56	43	50	37	37	25	25	18	22	22
Oceania	Cook Islands	CW	50	43	43	37	37	31	31	25	25	18	18	18
Oceania	Fiji	FJ	50	43	43	37	37	31	31	25	25	18	18	18
Oceania	Micronesia, Federated States of	FM	50	43	43	37	37	31	31	25	25	18	18	18
Oceania	French Polynesia	FP	50	43	43	37	37	31	31	25	25	18	20	20
Oceania	French Southern and Antarctic Islands	FS	50	43	43	37	37	31	31	25	25	18	15	15
Oceania	Kiribati	KR	50	43	43	37	37	31	31	25	25	18	15	15
Oceania	Midway Island	MQ	50	43	43	37	37	31	31	25	25	18	18	18
Oceania	New Caledonia	NC	50	43	43	37	37	31	31	25	25	18	22	22
Oceania	Niue	NE	50	43	43	37	37	31	31	25	25	18	15	15
Oceania	Norfolk Island	NF	50	43	43	37	37	31	31	25	25	18	18	18
Oceania	Vanuatu	NH	50	43	43	37	37	31	31	25	25	18	15	15
Oceania	Nauru	NR	50	43	43	37	37	31	31	25	25	18	15	15
Oceania	New Zealand	NZ	62	56	56	43	43	31	37	25	25	18	23	23
Oceania	Pitcairn	PC	50	43	43	37	37	31	31	25	25	18	15	15
Oceania	Marshall Islands	RM	50	43	43	37	37	31	31	25	25	18	18	18
Oceania	Tokelau	TL	50	43	43	37	37	31	31	25	25	18	15	15
Oceania	Tonga	TN	50	43	43	37	37	31	31	25	25	18	15	15
Oceania	Tuvalu	TV	50	43	43	37	37	31	31	25	25	18	15	15
Oceania	Wallis & Futuna Islands	WF	50	43	43	37	37	31	31	25	25	18	15	15
Oceania	Wake Island	WQ	50	43	43	37	37	31	31	25	25	18	18	18
Oceania	Western Samoa	WS	50	43	43	37	37	31	31	25	25	18	18	18
S. America	Aruba	AA	56	43	43	37	37	31	31	25	18	18	24	24

Region	State	FIPS	Interstate Highway		Divided Highway		Primary Highway		Secondary Highway		Local		Ferries	
			Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
S. America	Antigua and Barbuda	AC	56	43	43	37	37	31	31	25	18	18	16	16
S. America	Argentina	AR	68	50	50	37	37	31	31	25	18	12	21	21
S. America	Anguilla	AV	56	43	43	37	37	31	31	25	18	18	20	20
S. America	Barbados	BB	56	43	43	37	37	31	31	25	18	18	16	16
S. America	Belize	BH	62	56	56	43	49	37	37	31	31	25	21	21
S. America	Bermuda	BD	56	49	49	43	43	37	31	31	25	25	21	21
S. America	Bahamas	BF	56	43	43	37	37	31	31	25	18	18	26	26
S. America	Bolivia	BL	62	50	50	37	37	31	31	25	18	12	21	21
S. America	Brazil	BR	68	43	50	37	37	25	31	18	18	12	21	21
S. America	Chile	CI	62	50	43	37	31	31	25	25	18	12	21	21
S. America	Cayman Islands	CJ	56	43	43	37	37	31	31	25	18	18	20	20
S. America	Colombia	CO	62	50	43	37	31	31	25	25	18	12	21	21
S. America	Costa Rica	CS	56	49	49	43	43	37	31	31	25	25	21	21
S. America	Cuba	CU	56	43	43	37	37	31	31	25	18	18	23	23
S. America	Curacao	UC	56	43	43	37	37	31	31	25	18	18	16	16
S. America	Dominica	DO	56	43	43	37	37	31	31	25	18	18	20	20
S. America	Dominican Republic	DR	56	43	43	37	37	31	31	25	18	18	16	16
S. America	Ecuador	EC	62	50	43	37	31	31	25	25	18	12	21	21
S. America	El Salvador	ES	62	56	56	43	49	37	37	31	31	25	21	21
S. America	French Guiana	FG	62	50	50	37	37	31	31	25	18	12	21	21
S. America	Falkland Islands (Malvinas)	FK	56	43	43	37	37	31	31	25	18	18	12	12
S. America	Grenada	GJ	56	43	43	37	37	31	31	25	18	18	20	20
S. America	Guadeloupe	GP	56	43	43	37	37	31	31	25	18	18	20	20
S. America	Guantanamo Bay	--	56	43	43	37	37	31	31	25	18	18	23	23
S. America	Guatemala	GT	62	56	56	43	49	37	37	31	31	25	21	21
S. America	Guyana	GY	62	50	50	37	37	31	31	25	18	12	21	21
S. America	Haiti	HA	56	43	43	37	37	31	31	25	18	18	20	20

Region	State	FIPS	Interstate Highway		Divided Highway		Primary Highway		Secondary Highway		Local		Ferries	
			Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
S. America	Honduras	HO	62	56	56	43	49	37	37	31	31	25	21	21
S. America	Jamaica	JM	56	43	43	37	37	31	31	25	18	18	23	23
S. America	Martinique	MB	56	43	43	37	37	31	31	25	18	18	20	20
S. America	Montserrat	MH	56	43	43	37	37	31	31	25	18	18	16	16
S. America	Netherlands Antilles	NT	56	43	43	37	37	31	31	25	18	18	16	16
S. America	Nicaragua	NU	59	50	41	27	27	18	23	14	16	9	5	5
S. America	Panama	PM	62	56	56	43	49	37	37	31	31	25	21	21
S. America	Paraguay	PA	62	50	50	37	37	31	31	25	18	12	21	21
S. America	Peru	PE	62	50	43	37	31	31	25	25	18	12	21	21
S. America	Saint Barthelemy	TB	56	43	43	37	37	31	31	25	18	18	16	16
S. America	Saint Martin	RN	56	43	43	37	37	31	31	25	18	18	16	16
S. America	Saint Kitts and Nevis Islands	SC	56	43	43	37	37	31	31	25	18	18	16	16
S. America	Saint Lucia	ST	56	43	43	37	37	31	31	25	18	18	20	20
S. America	Saint Vincent and the Grenadines	VC	56	43	43	37	37	31	31	25	18	18	20	20
S. America	Sint Maarten	NN	56	43	43	37	37	31	31	25	18	18	16	16
S. America	Suriname	NS	62	50	50	37	37	31	31	25	18	12	21	21
S. America	Trinidad and Tobago	TD	62	50	43	37	31	31	25	25	18	12	25	25
S. America	Turks and Caicos Isl.	TK	56	43	43	37	37	31	31	25	18	18	16	16
S. America	Uruguay	UY	62	50	50	37	37	31	31	25	18	12	21	21
S. America	Venezuela	VE	62	50	43	37	31	31	25	25	18	12	21	21
S. America	Virgin Islands, British	VG	56	43	43	37	37	31	31	25	18	18	24	24

The chart below identifies the toll authorities that have assigned multiple names to the same toll plaza location. When generating a route using PC*MILER|Tolls, only one name for each toll plaza location is provided in the Detailed Route Report. Because a vehicle can travel through any of the sub-plazas at one of these locations, this chart may help you match up agency names to the names that appear along a route in the Detailed Route Report.

Currently there is only one toll plaza location in the database that has multiple names assigned to it:

Agency	Toll Road	Toll Plaza Name in PC*MILER|Connect	Toll Plaza Abbreviation in Detailed Route Report	Other Plaza Abbreviations Used By Agency at the Same Location	Other Plaza Names Used by Agency at the Same Location
VDOT	Chesapeake Expressway	Chesapeake Expressway	16, 17	18*	

* 18 is the abbreviation used for Discount Program Members.

Table 1 below lists roads that only accept toll discount programs. No cash or other payment option is offered, and driving on one of these roads without a transponder and discount program membership will cause an invoice to be sent with a surcharge added to the toll rate.

Table 2 lists all electronic toll roads (Open Road Tolling). Like the roads in Table 1, drivers without a transponder on these roads will receive an invoice with a video toll rate amount.

What differentiates these two types of roads is the amount of the surcharge on the roads in Table 1: these roads carry a relatively expensive surcharge, and the transportation authorities strongly advise against driving on these roads without a transponder.

TABLE 1. **Roads Accepting Only Toll Discount Programs – Additional Surcharge on Violations**

State	Toll Road/Exits	Discount Program	Video Toll/Cash	Comments
Florida	Florida Turnpike	SunPass	None	For the Florida Turnpike, the five exits listed are SunPass Only. Drivers without SunPass are required to exit before or after these exits. If used by mistake then an invoice is sent home with a surcharge.
	Becker Road	SunPass	None	
	Jog Road exit 98	SunPass	None	
	SR 710 exit 107	SunPass	None	
	Consulate Drive exit 255	SunPass	None	
	Kissimmee Park Rd exit 240	SunPass	None	

Florida	Polk Parkway - Pace Road exit 23	SunPass	None	This exit on the Polk Parkway is SunPass only. If used by mistake an invoice is sent to the user with a surcharge.
Pennsylvania	Pennsylvania Turnpike	E-ZPass	None	For the four exits listed here a video toll plus a surcharge is sent in an invoice to the user.
	Virginia Drive exit 340	E-ZPass	None	
	Street Road exit 352			
	SR 29 exit 320	E-ZPass	None	
	SR 903 exit 87	E-ZPass	None	
Texas	Camino Colombia Toll Road	EZ Tag, TxTag, TollTag	None	You must have a TxTag account or other accepted prepaid account to pay tolls on Camino Colombia. Under Texas law, non-payment of tolls is a misdemeanor offense, and you may be subject to Administrative fees and fines of up to $350 per violation.
Texas	Fort Bend Westpark Tollway	EZ Tag, TxTag	None	A fee is added to the toll rate and an invoice is sent to drivers without EZ Tag.
Texas	Fort Bend Parkway Toll Road (Fort Bend Section)	EZ Tag, TxTag, TollTag	None	A fee is added to the toll rate and an invoice it sent to drivers without EZ Tag.
Texas	Westpark Tollway	EZ Tag, TxTag, TollTag	None	Driving without an EZ TAG results in a violation event. A toll violation invoice is sent to registered owner/renter for the past-due toll amount plus fess od $33.

Texas	Grand Parkway (Fort Bend section)	EZ Tag, TxTag, TollTag	None	A fee is added to the toll rate and an invoice it sent to drivers without EZ Tag.
Texas	Sam Houston Tollway	EZ Tag, TxTag, TollTag	Video Toll	There are nineteen plazas that require an EZ TAG. For the first two violations drivers can go to store or call and pay the toll; for the third violation an invoice with a surcharge of $33 is generated.
	North Gessner	EZ Tag, TxTag, TollTag	Video Toll	
	West Road Entrance Ramp	EZ Tag, TxTag, TollTag	Video Toll	
	Hammerly Blvd Entrance Ramp	EZ Tag, TxTag, TollTag	Video Toll	
	Bellaire Blvd Entrance Ramp	EZ Tag, TxTag, TollTag	Video Toll	
	Tidwell Road	EZ Tag, TxTag, TollTag	Video Toll	
	Garrett Road	EZ Tag, TxTag, TollTag	Video Toll	
	Generation Parkway	EZ Tag, TxTag, TollTag	Video Toll	
	Northeast Mainline Toll Plaza	EZ Tag, TxTag, TollTag	Video Toll	
	W Lake Houston Parkway	EZ Tag, TxTag, TollTag	Video Toll	
	John Ralston Road	EZ Tag, TxTag, TollTag	Video Toll	
	Wilson Road	EZ Tag, TxTag, TollTag	Video Toll	
	Tanner Road Exit Ramp	EZ Tag, TxTag, TollTag	Video Toll	
	Clay Road Exit Ramp	EZ Tag, TxTag, TollTag	Video Toll	
	South Main Entrance Ramp	EZ Tag, TxTag, TollTag	Video Toll	
	Almeda Road Entrance Ramp	EZ Tag, TxTag, TollTag	Video Toll	
	Cullen Exit Ramp	EZ TAG, TxTag, TollTag	Video Toll	
	Wayside Entrance Ramp	EZ TAG, TxTag, TollTag	Video Toll	
	Red Bluff/ San Augustine	EZ TAG, TxTag, TollTag	Video Toll	

	Entrance Ramp			
	Monroe Exit Ramp	EZ TAG, TxTag, TollTag	Video Toll	
Texas	Hardy Toll Road	EZ Tag, TxTag, TollTag	Video Toll	There are two plazas that require an EZ Tag. For the first two violations drivers can go to a store or call and pay the toll, for the third violation an invoice with a surcharge of $33 is generated.
	Rankin Road Entrance Ramp	EZ Tag, TxTag, TollTag	Video Toll	
	Central Greens Blvd	EZ Tag, TxTag, TollTag	Video Toll	

TABLE 2. **Electronic Toll Roads (Open Road Tolling)**

State	Toll Road/Exits	Discount Program	Video Toll/Cash	Comments
British Columbia	Golden Ears Bridge	Quickpass	Pay As You Go	If the driver is not a registered customer, the license plate information is forwarded electronically to ICBC when the bridge is crossed. TransLink uses the information received from ICBC to send a bill for the toll amount to the registered owner of the vehicle.
	Port Mann Bridge	TReO	Pay By Mail	
California	Golden Gate Bridge	FasTrak	Pay-by-Plate	
	Foothills-Eastern Toll Road	FasTrak	ExpressAccount Invoice	
	San Joaquin Hills Corridor	FasTrak	ExpressAccount Invoice	
Colorado	E-470	EXpressToll, GO-	License Plate	

		PASS	Toll	
	Northwest Parkway	EXpressToll, GO-PASS	License Plate Toll	
Florida	Snapper Creek Expressway SR 878	SunPass	Toll-By-Plate	
	Don Shula Expressway SR 874	SunPass	Toll-By-Plate	
	Gratigny Parkway SR 924	SunPass	Toll-By-Plate	
	Homestead Extension Of Florida's Turnpike - Exit 1 to Exit 47 including Miramar Plaza	SunPass	Toll-By-Plate	
	Sawgrass Expressway	SunPass	Toll-By-Plate	
	Veterans Expressway	SunPass	Toll-By-Plate	
	Airport Expressway	SunPass	Toll-By-Plate	
	Broad Causeway	SunPass	Toll-By-Plate	
	Selmon Expressway	SunPass	We Bill You	
	New interchange I-4/Selmon Expressway Interchange (Connector)	SunPass	Toll-By-Plate	
	Dolphin Expressway SR 836	SunPass	Toll-By-Plate	
	Mid-Bay Bridge Connector	SunPass	Toll-By-Plate	
	Florida's Turnpike – County Line Road & NW 27th Avenue	SunPass	Toll-By-Plate	
	Golden Glades Toll Plaza	SunPass	Toll-By-Plate	
Illinois	Tri-State Tollway	I-Pass, E-ZPass	Video Toll Rate	For the highlighted exit which is an all electronic tolling ramps, no cash accepted. Cash customers will incur an unpaid toll and are responsible for paying the cash fare indicated within 7 days of the event.
	147th Street I-57/1294	I-Pass, E-ZPass	Video Toll Rate	

	Balmoral Northbound	I-Pass, E-ZPass	Video Toll Rate	
	Ronald Reagan Tollway	I-Pass, E-ZPass	Video Toll Rate	For the highlighted exit which is an all electronic tolling ramps, no cash accepted. Cash customers will incur an unpaid toll and are responsible for paying the cash fare indicated within 7 days of the event.
	Eola Road	I-Pass, E-ZPass	Video Toll Rate	
	Jane Addams Tollway	I-Pass, E-ZPass	Video Toll Rate	
	IL 47 EB ent WB exit	I-Pass, E-ZPass	Video Toll Rate	
	IL 47 EB ent WB exit	I-Pass, E-ZPass	Video Toll Rate	
Maryland	Intercounty Connector MD 200	E-ZPass	Video Toll Rate	Toll facility customers who do not have an E-ZPass and travel the ICC will be sent a bill in the mail and charged the Video Toll Rate (VRT). VRTs at all Maryland toll facilities are 150% of the base toll rates with a minimum of $1 and a maximum of $15 above the base toll rate.
New York	Henry Hudson Bridge	E-ZPass	Bill by Mail	A photograph is taken of the license plate and the registered owner of the vehicle will receive a bill in the mail.
North Carolina	Triangle Expressway	NC Quick Pass	Bill By Mail	
Ontario	407 ETR	407 ETR Transponder	Video Toll Charge	
Quebec	A 25 Bridge	A25 Transponder	Video Toll Charge	
Texas	183A	EZ Tag, TxTag, TollTag	Pay By Mail	
	Central Texas Tollways Loop 1	EZ Tag, TxTag,	Pay By Mail	

		TollTag		
	Central Texas Tollways SH 130	EZ Tag, TxTag, TollTag	Pay By Mail	
	Central Texas Tollways SH 45	EZ Tag, TxTag, TollTag	Pay By Mail	
	Loop 49	TxTag, TollTag, EZ TAG	Pay By Mail	
	Manor Expressway	EZ Tag, TxTag, TollTag	Pay By Mail	
	Addison Airport Tunnel	TollTag, TxTag	ZipCash	
	Dallas North Tollway	TollTag, TxTag	ZipCash	
	Lewisville Lake Toll Bridge	TollTag, TxTag	ZipCash	
	Mountain Creek Lake Toll Bridge	TollTag, TxTag	ZipCash	
	Sam Rayburn Tollway	TollTag, TxTag	ZipCash	
	President George Bush Turnpike	TollTag, TxTag	ZipCash	
	PGBT Western Extension SH 161	TollTag, TxTag	ZipCash	
	Chisholm Trail Parkway	TollTag, TxTag	ZipCash	
	Tomball Tollway	EZ Tag, TxTag, TollTag	Video Toll	A photo of the license plate is taken and the registered owner of the vehicle receives a violation notice with a $11.00 fee added to the amount of the toll rate. This is a new toll road that opened on April 12, 2015.
	Texas SH 550	EZ Tag, TxTag, TollTag	Pay By Mail Rate	
	Texas State Highway 99	EZ Tag, TxTag, TollTag	Notice By Mail	
Virginia	Pocahontas Parkway	E-ZPass	E-ZPass, Visa or Mastercard	The two listed exits are no cash exits, The Mainline Plaza is also cashless overnight from 11 p.m to 5 a.m. Payment options are Visa/Mastercard Debit/Credit cards

	Laburnum Avenue	E-ZPass	E-ZPass, Visa or Mastercard	
	Airport Connector	E-ZPass	E-ZPass, Visa or Mastercard	
	South Norfolk Jordan Bridge	E-ZPass	Pay by Plate	
	Midtown Tunnel	E-ZPass	Pay by Plate	
	Downtown Tunnel	E-ZPass	Pay by Plate	
Washington	SR 520 Bridge	Good To Go	Pay By Mail	

> **Legend:** A = alphabetic (A,B,C,…Z)
> N = numeric (0,1,2,...9)

NOTE: The version of PC*MILER in which postal code coverage was started is noted for each country listed below. This refers to postal code coverage only, the country may have been available for routing without postal code access in previous versions.

North America
Canada
ANA NAN or ANANAN

Mexico, starting in Version 25.1
NNNNN

Puerto Rico, starting in Version 27.1
NNNNN

United States
NNNNN

South America
Brazil, starting in Version 24.1
NNNNN

Europe
United Kingdom
AANA N or AAN N or AANN N
or, starting in PCM24, AANAN or AANN or AANNN
or, starting in Version 25.1, AANA NAA or AANANAA or AAN NAA or AANNAA or AANN NAA or AANNNAA

France, Germany, Italy, Vatican City, Spain, and Finland
NNNNN

Russian Federation, starting in Version 22.1
NNNNNN

Romania, starting in Version 23.1
NNNNNN

Estonia and Croatia, starting in Version 22.1
NNNNN

Lithuania, starting in Version 23.1
NNNNN

Andorra, starting in Version 26.1
AANNN

Monaco, starting in Version 26.1
NNNNN

Ukraine and Turkey, starting in Version 24.1
NNNNN

Netherlands, Belgium, Luxemburg, Austria, Switzerland, Liechtenstein, Denmark, Norway and Hungary
NNNN

Latvia and Slovenia, starting in Version 22.1
NNNN

Bulgaria, starting in Version 23.1
NNNN

Iceland
NNN

Ireland (Dublin only)
NN (single digit postcodes N are not supported for input in PC*MILER)

Poland
NN-NNN
or, starting in Version 24.1: NNNNN

Portugal
NNNN
or, starting in Version 24.1: NNNN-NNN or NNNNNNN

San Marino, starting in Version 26.1
NNNNN

Sweden
NNN
or, starting in Version 22.1: NNN NN or NNNNN

Czech Republic and Slovakia
NNN NN or NNNNN

Greece, starting in Version 22.1
NNN NN or NNNNN

Africa
Lesotho, starting in Version 27.1
NNNN

South Africa, starting in Version 24.1
NNNN

Swaziland, starting in Version 27.1
ANNN

Asia
Japan, starting in Version 24.1
NNN-NNNN or NNNNNNN

India, starting in Version 24.1
NNNNNN

Indonesia, starting in Version 27.1
NNNNN

Malaysia, starting in Version 27.1
NNNNN

Taiwan, starting in Version 27.1
NNN

Thailand, starting in Version 27.1
NNNNN

Oceania
Australia, starting in Version 24.1
NNNN

New Zealand, starting in Version 27.1
NNNN

Federated States of Micronesia, Guam, Marshall Islands, Northern Mariana Islands, and Palau, starting in Version 27.1
NNNNN

PC*MILER Version 29 data highlights include extensive updates in over 125 countries and territories, and over 25 countries and territories upgraded to High and Comprehensive coverage since the previous version.

Highway and Street-Level Data Coverage by Region

Region	Number of Countries	Highway Distance (Miles)	Streets Distance[1] (Miles)	Number of Cities	Number of Postal Codes
Africa	58	424,439	3,201,635	135,732	5,841
Asia	32	1,007,522	4,821,424	941,755	998,276
Europe	58	1,875,662	10,071,351	739,096	1,017,853
Middle East	16	200,699	432,016	142,645	24,300
North America	7	948,439	7,540,110	268,172	1,047,035[2]
Oceania	21	157,827	824,619	21,926	31,883
South America	48	505,152	1,985,903	116,027	91,974
TOTAL	**240**	**5,119,740**	**28,877,058**	**2,365,353**	**3,217,162**

[1] *Available with purchase of the PC*MILER/Streets add-on. Street-level coverage for each region is available only for select countries with coverage level Comprehensive and High. Street-level mileage includes highway miles.*
[2] *Includes Canadian Postal Codes available with purchase of data add-on*

Countries Where Significant Street-Level Coverage* Is Available (By Region) – Version 29

Region	Countries
Africa	Botswana, Egypt, Kenya, Lesotho, Morocco, Mozambique, Namibia, Reunion, South Africa, Swaziland, Tunisia, Western Sahara, Zimbabwe
Asia	Brunei, Hong Kong, India, Indonesia, Macau, Malaysia, Philippines, Singapore, Taiwan, Thailand, Vietnam
Europe	All countries except Armenia, Azerbaijan, Cyprus, Faroe Islands, Georgia, Kyrgyzstan, Svalbard, Tajikistan, Turkmenistan, and Uzbekistan
Middle East	Bahrain, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, UAE
North America	Canada, Puerto Rico, United States
Oceania	Australia, New Zealand
South America	Argentina, Bahamas, Brazil, Cayman Islands, Chile, Colombia, Costa Rica, Falkland Islands, French Guiana, Guadeloupe, Martinique, Panama, Paraguay, Peru, Saint Barthelemy, Uruguay, Venezuela

* Includes High and Comprehensive coverage (see next page), data for some countries does not include truck attributes.

NOTE: When calculating routes using Streets data sets in regions outside North America, note that routes cannot be run within or across countries not included in the selected data set. The Worldwide Highway data set must be used to run routes to/from countries that are not covered in the Streets data set.

PC*MILER|Worldwide 29 Data Coverage - Overview

The map and table below shows a high level overview of the map data coverage offered in PC*MILER|Worldwide 29. Please note that the coverage classifications have changed slightly from Version 28. For more information, please contact ALK at pcmsupport@alk.com.

PC*MILER|Worldwide 29 Map Data Coverage
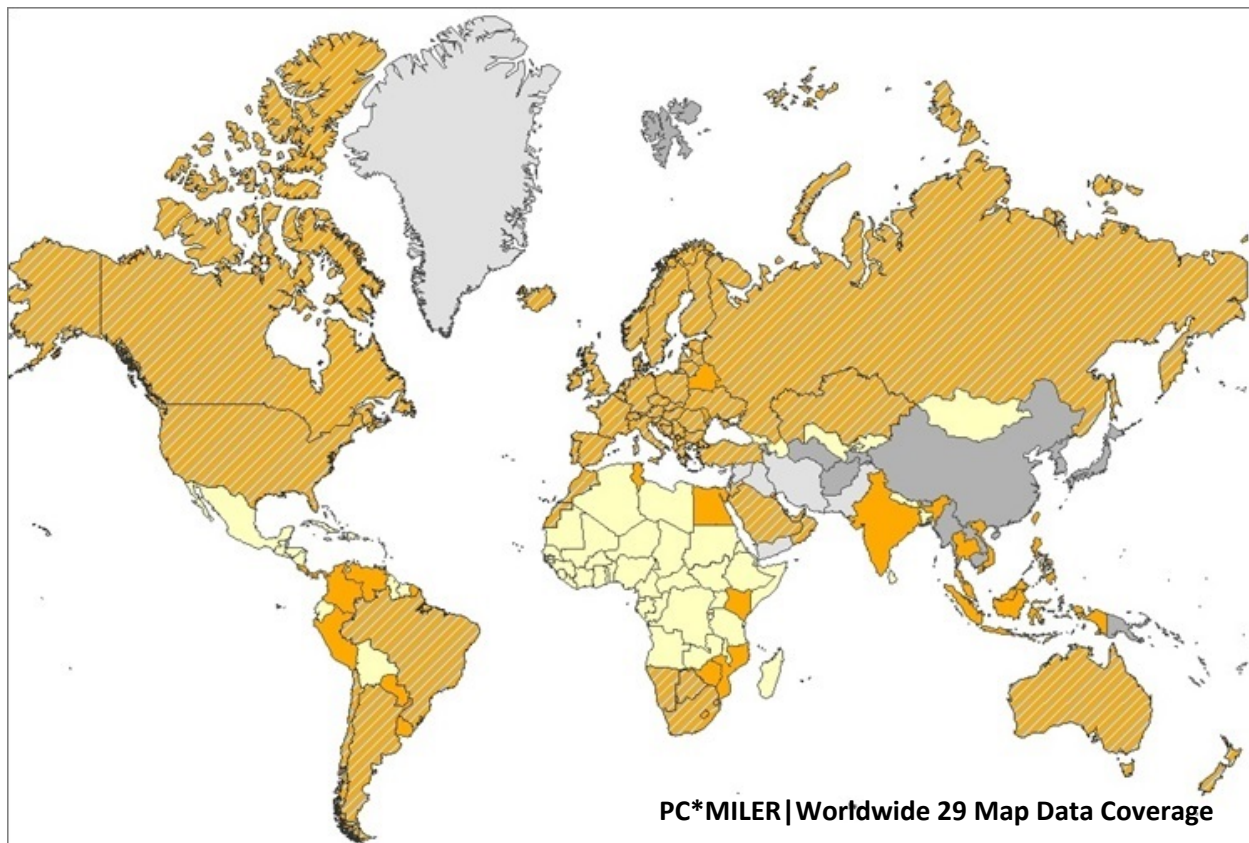
Coverage Level*	Road Coverage	Locations	Truck-Specific Attributes
Comprehensive	Comprehensive Street Level Network	Cities, postal codes, addresses	Yes
High	Comprehensive Street Level Network	Cities, postal codes, addresses	No
Intermediate	Complete Highway + Street Level Network	Cities, some postal codes, some addresses	No
Entry	Basic Highway + Some Street Level Network	Cities, some postal codes	No
Basic	City to City Road Network	Cities	No

*   *Coverage levels are assigned based on road coverage. Postal code attributes generally correspond to the level of road coverage, with some exceptions.*

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