Federal Transit Administration

U.S. Department of Transportation

Federal Transit Administration

Transit Economic Requirements Model Lite (TERM Lite)

TERM Lite Quick Start Guide

Quick Start User Guide

May 2015

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1. Overview

The FTA Transit Economic Requirements Model Lite ("TERM Lite") is a PC-based computer application designed to estimate an agency's transit capital investment needs over an extended time horizon. The model estimates the total amount of annual capital expenditures required over a twenty-year period to maintain or improve the physical condition and performance of the agency's transit infrastructure. These annual expenditure estimates are provided for each of two major capital investment categories — (1) asset rehabilitation and replacement, and (2) performance improvements — and are further subdivided by transit mode, asset type (e.g., vehicles, stations, structures, etc.) and urbanized area characteristics. The model output also includes estimates of the physical condition of the agency's transit asset base — both for the current year and for a 20 or 30-year forecast period. Asset condition forecasts are directly impacted by the asset condition replacement policies applied by the user.

The TERM Lite design allows the user to control a wide range of model input parameters (e.g., asset replacement and rehabilitation assumptions, and financial assumptions) to facilitate the analysis of a wide range of investment scenarios.

Prerequisites

We recommend that the machine on which TERM Lite is run meet the following prerequisites:

1. Windows XP or newer
2. 4GB RAM or higher
3. Microsoft Access 2007 or newer
4. Microsoft Excel 2007 or newer

Operating TERM Lite with lower specification may result in slow performance.

Help Desk

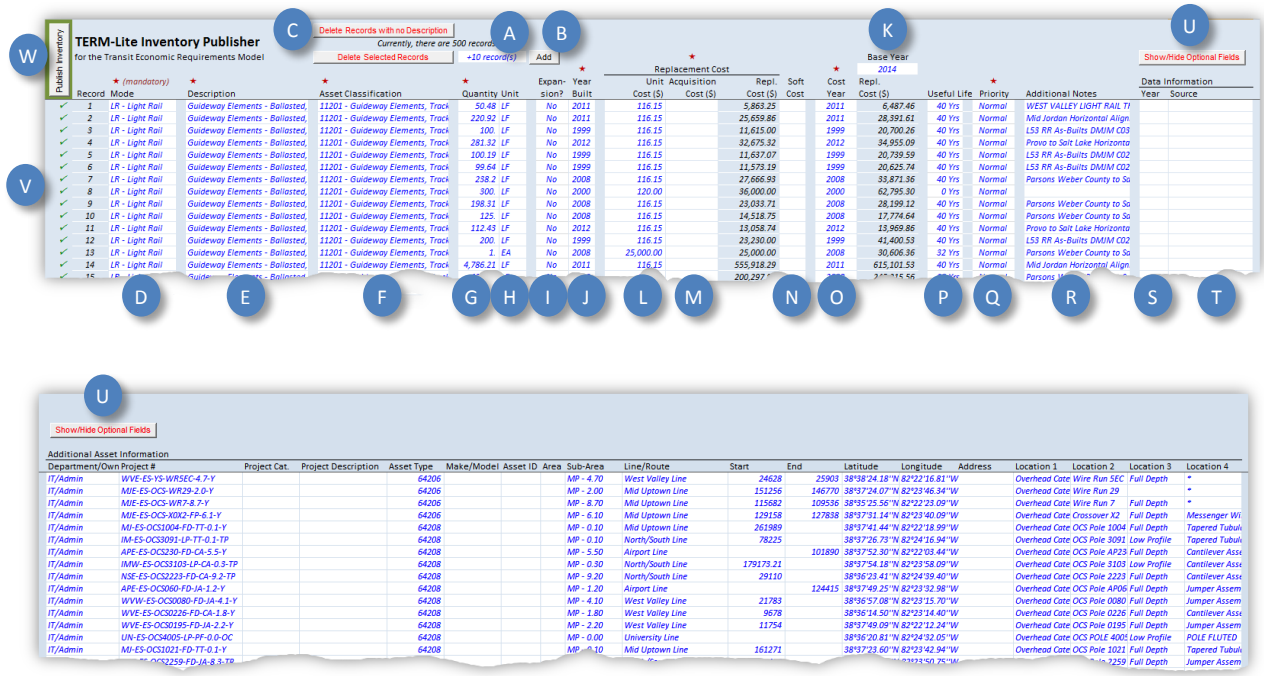
The TERM Lite development team appreciates your feedback and questions. Please contact us with future feature requests, found defects, or user support by emailing us at TERM-help@dot.gov.

2. TERM Lite Inventory Publisher

This section provides a step by step walk-through to get a new user started. Users are encouraged to test the limits of TERM Lite by performing what-if analysis beyond what is presented in this guide.

An MS Excel-based Inventory Publisher (IP) input file has been prepared to simplify the process of developing a file for transit asset inventory and then entering that inventory into TERM Lite. This input file will allow the user to transfer data from MS Excel to TERM Lite (MS Access).

Exhibit 1 – Inventory Publisher



Step 2-1 Download and Open the FTA TERM Lite Inventory Publisher

The IP can be downloaded from the FTA TERM Lite web page. Double click on the IP template and save the resulting new Excel file to a location of your convenience. The name of the file is not important. Note that users can provide input into white cells only. The following steps will explain how to provide the proper content needed for a successful TERM Lite simulation run.

Step 2-2 Adding and Removing Data Rows

The Inventory Publisher is protected to ensure that the prescribed data input procedures are maintained. In order to add or remove rows, use the tools provided for this purpose (refer to Exhibit 1-A/B/C).

To add blank rows, type the number of rows needed in the cell next to the "Add" button. Click the "Add" button to insert the blank rows (refer to Exhibit 1-A/B). *Tip: Add more rows than are needed. They can be easily removed later.*

There are two ways to remove unused/unwanted records (refer to Exhibit 1-C):

1. Delete Records with No Description – If the user added more rows that were eventually needed, the surplus rows likely have no descriptions in them. This button will cause ALL RECORDS with no descriptions to be deleted. Therefore, it is important to ensure that all valid records have a description before using this option. All but one row can be deleted this way.

2. Delete Selected Records – To delete one or more contiguous rows, select a range of rows using any of the editable fields. Click this option and the entire rows corresponding to those cells will be deleted. The first row cannot be deleted this way.

Step 2-3 Enter Mode

In the TERM Lite Inventory Publisher, select from a list of the standard TERM Lite modes (refer to Exhibit 1-D).

Exhibit 2 – Mode Codes

Code	Description	Code	Description	Code	Description
BRT	Bus Rapid Transit	HR	Heavy Rail	OR	Other
CC	Cable Car	JT	Jitney	SY	Systemwide Assets
CR	Commuter Rail	LR	Light Rail	TB	Trolleybus
DR	Demand Response	MB	Motor Bus	TR	Aerial Tramway
FB	Ferry Boat	MO	Monorail	VP	Vanpool

Step 2-4 Enter Description

Enter an asset-specific description for each asset record (refer to Exhibit 1-E). While this field is not necessary for the simulation, having a unique name for each asset will help keep the data and reports transparent and manageable. Asset specific naming also helps simplify identification of individual inventory assets and will simplify future inventory updates.

Step 2-5 Enter Asset Classification

Each asset record must include a five-digit asset classification code (refer to Exhibit 1-F). See “Appendix A – Asset Classification” for a comprehensive list of codes. Each possible code correlates to a Category, Sub-Category, Element, and Sub-Element. Note that the codes represent a hierarchy of classifications. For example, the user may enter a code of “52504” which represents “Vehicles, Revenue Vehicles, Rural”. Alternately, an asset can be coded using “51000” for “Vehicles, Revenue Vehicles” or even “50000” which represents the overall category of “Vehicles”. The list of asset types can be modified to accommodate agency-specific asset codes. However, the advantage to using the TERM-Lite classification codes is that they align with FTA reporting requirements.

Step 2-6 Enter a Quantity and Unit of Measure

Enter the quantity and unit of measure for each asset (refer to Exhibit 1-G/H). The quantity is mandatory. The unit of measure is optional. However, it must be understood that the unit price, if stated, will be multiplied by this quantity to arrive at a replacement cost.

Step 2-7 Enter the Expansion Status

Enter “Yes” or “No” to indicate whether the selected asset is an “expansion asset” (refer to Exhibit 1-I). An expansion asset is one that is planned but that has not yet been procured. This field is for

informational purposes only. For the purposes of the expansion analysis functionality, TERM-Lite will consider any asset with a future 'Year Built' to be an expansion asset. However, this field can be used to keep track of which fields contain existing versus planned assets. The expansion analysis functionality will be explained in more detail later.

Step 2-8 Enter the Year Built

Enter the year each asset was built, manufactured, or first entered revenue service (refer to Exhibit 1-J). This information is critical since TERM Lite relies heavily on condition decay curves to predict condition, rehabilitation, and replacement needs based on age.

Step 2-9 Enter Base Year

In the cell labeled "Base Year" located above the Replacement Cost column (refer to Exhibit 1-K), enter the year to which all Planned Replacement Costs should be shown. TERM Lite will make all appropriate adjustments based on a construction cost index and inflation assumptions.

Step 2-10 Enter Replacement Cost

The IP has two fields to store replacement cost (refer to Exhibit 1-L/M). The user must choose between one of two options:

1. **Enter a Unit Cost**. If this method is chosen, the final replacement cost will be built up from the multiplication of this value and the quantity entered in Step 2-6.
2. **Enter an Acquisition Cost**. If this method is chosen, the quantity will not be used. TERM Lite will treat this value as the base replacement cost. If a user uses both of these fields, TERM Lite will use the Unit Cost x Quantity and the Acquisition Cost will be ignored.

The costs entered in these fields can include any scope of work that is desired by the user. For example, if historical cost data is such that it includes Agency soft-costs (procurement, design, engineering, construction management, etc.), then it is acceptable to use that cost as the Unit or Total Cost as long as the user does not double count Agency soft-costs by using the soft-cost field as described below in Step 2-11.

Step 2-11 Enter Agency Soft Costs (Optional)

Agency soft-costs represent the additional markups needed to cover the actual acquisition of a new asset. This may include demolition of the existing asset, procurement, design, engineering, construction management, etc. Enter your agency's standard soft-cost percentage as applicable to each asset type (refer to Exhibit 1-N). TERM Lite will then apply this soft-cost amount to the replacement cost (along with other factors) to arrive at the expected Replacement Cost.

As mentioned in Step 2-10, it is at the discretion of the user to define exactly how costs are defined. If the Unit or Acquisition Cost already includes soft-costs, then this field should be populated with a value of 0%.

Step 2-12 Enter Cost Year

Enter the cost year for all costs provided (refer to Exhibit 1-O). If historical data is used, the cost year will typically be the year in which the asset was built, installed, or procured as new. This value will be used to escalate (i.e., inflate) costs from their original base year to the Base Year entered in Step 2-9.

***Note**: The "Replacement Cost" shown in this section is presented for the user's convenience only. It is calculated using the cost factors provided plus soft costs and adjusted for inflation to the chosen Base Year. The user will have an opportunity to select Base Year and Inflation assumptions after the data has been published to TERM Lite.*

Step 2-13 Enter Useful Life

Each asset entered in Step 2-5 will be matched to a list of asset types which will include an assumed estimated useful life (refer to Exhibit 1-P). This value will be displayed for review. If desired, the useful life can be overridden by entering an asset-specific useful life. If a value is entered, the asset-type specific useful life will be shown with a line through it to emphasize to the user that it has been overridden.

Step 2-14 Designate Priority

Use the pull-down menu to select one of the following four priorities (refer to Exhibit 1-Q):

1. **Normal** – Assets with this priority status will compete for annual funding based on the standard TERM Lite prioritization.
2. **Deficient** – Assets with this priority status represent those that have been identified as in need of replacement regardless of their current age. These will always be funded before any assets with a 'Normal' status.
3. **Funded** – Assets with this priority status will be funded as soon as adequate funding is available. They will always be funded before any assets with a 'Normal' or 'Deficient' status.
4. **Exclude** – TERM Lite will not include these assets in the analysis. The will not be funded or included in backlog calculations.

Step 2-15 Enter Additional Notes (Optional)

Use this field to document any desired asset-specific information (refer to Exhibit 1-R).

Step 2-16 Enter Data Year and Data Source (Optional)

Enter the year asset data were collected and data source for each asset record (refer to Exhibit 1-S/T). While these fields are not necessary for the simulation, this information provides a valuable record of the age asset records and where to obtain updated information in future years.

Step 2-17 Enter Additional Information

Click the 'Show/Hide Optional Fields' button (refer to Exhibit 1-U) to expand the grid to include the following additional optional informational fields: Department/Owner, Project Number, Project

Category, Project Description, Asset Type, Make/Model, Asset ID, Area, Sub-Area, Line/Route, Start, End, Latitude, Longitude, Address, Location 1, Location 2, Location 3, and Location 4. These fields are all for informational purposes only. They are not used in the TERM Lite analysis. However, they can be used for advanced reporting.

Step 2-18 Check the data for invalid entries

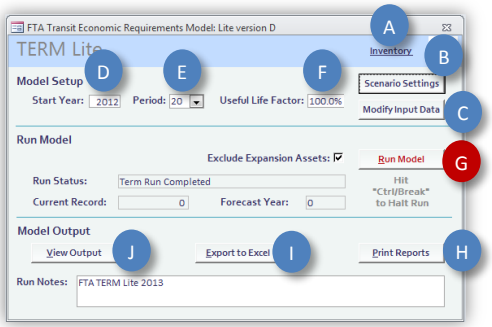
If any records contain missing data, the user must provide valid entries prior to publishing the inventory data. Invalid records are designated by an "✗" on the left side of the worksheet (refer to Exhibit 1-V). Once the record is validated, it will be designated by a checkmark (✓).

Step 2-19 Publish Inventory

If all records are ready to publish, the area around the 'Publish' button will change from red to green. There are two methods that may be used to publish the inventory data:

1. **Built-In Import Feature** – Verify that the Inventory Publisher is closed. In TERM Lite, on the Main Menu, click on the 'Inventory' link (refer to Exhibit 3-A). Click the 'Import Inventory Publisher' button. Browse to the file and click the 'Open' button. The data will import. The User will have the choice to append or replace the existing data.
2. **Manual** – In the Inventory Publisher, click the 'Publish' button. The data will be copied to the computer clipboard. In TERM Lite, on the Main Menu, click on the 'Inventory' link (refer to Exhibit 3-A). To replace the existing data, select the existing records, hit the 'Delete' on the keyboard, select the * row, and 'Ctrl+V' to paste the data from the clipboard. To append the data, simply select the * row, and 'Ctrl+V' to paste the data from the clipboard.

Exhibit 3 – TERM Lite Main Menu



***Note**: Every effort was made to simplify the import of data using these tools. However, some computer configurations or data anomalies have been shown to result in import failure. If you encounter any problems while transferring data to TERM Lite, please contact the Help Desk using the contact information provided in Section 1.*

3. Transit Economic Requirements Model (TERM)

TERM is an MS Access-based analysis tool. Once run, the model contains all of the data, tables, queries, and results that make up a single analysis. If the model is rerun, all results are overwritten. Therefore, for each separate analysis, the user must create a copy of the model file if they want to retain data from a prior run. There is no limit to the number of copes you can maintain of TERM.

Step 3-1 Open the TERM database model for analysis

Locate the TERM file that contains the asset inventory. It is recommended that you keep an unmodified version of the model in case you wish to return to the original data. Double click on the file that you wish to open for analysis. *Tip: TERM Lite is often kept in compressed (ZIP) format to reduce file size. TERM Lite must be decompressed to run properly.*

The TERM splash screen will appear for a few seconds followed by the Main Menu form (refer to Exhibit 3).

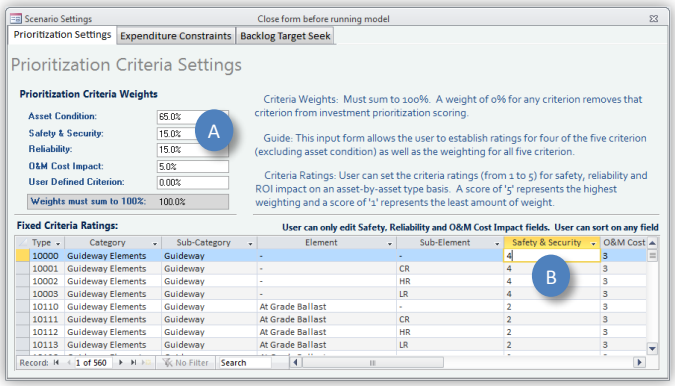
Step 3-2 Navigate to and edit Scenario Settings

Click the button labeled "Scenario Settings" (refer to Exhibit 3-B)." A form with three tabs will appear: Prioritization Settings, Expenditure Constraints, and Backlog Target Seek. Make sure the "Prioritization Settings" tab is open for the next step.

Step 3-3 Edit Prioritization Criteria Settings

In simulations where funding is constrained to less than that required to address all unmet needs (i.e., there is insufficient funding to complete all outstanding rehab and replacement activities), TERM uses a set of investment criteria to assign a prioritization score to each reinvestment need. TERM then ranks each reinvestment action (highest to lowest) and then reinvests in those assets with the highest prioritization scores subject to the assumed level of annual funding for that forecast (refer to Step 3-4 below). This tab allows you to revise the weighting of five prioritization criterion (refer to Exhibit 4-A.) and also to revise the asset level criteria scores for each asset type (these values must be between 1 and 5) (refer to Exhibit 4-B.).

Exhibit 4 – Prioritization Criteria Settings



For example, if your agency values safety and security above all other considerations, adjust the weight for that criteria higher than the other criterion. You may assign 100 percent of the weight to a single criteria but the total of all weights must be equal to 100 percent. Based on prior industry user's experience, it is recommended that users place a high weight on asset condition and lower weights on the other criteria. The "User Defined" criterion is optional with default values of "1" for each asset type – the user can calibrate the asset level ratings as desired (subject to the limitation of using integer values between 1 and 5).

Step 3-4 Edit Expenditure Constraints

From the Main Menu, click 'Scenario Settings' then click on the 'Expenditure Constraints" tab. Populate each year with the maximum funding that you want TERM to spend. When funding is less than the amount required to address all outstanding needs, TERM will utilize the prioritization criteria (refer to Step 3-3) to determine which reinvestment actions are addressed (and which assets enter the SGR backlog). By varying the level of annual expenditures, the user can execute "what if" scenarios to illustrate various conditions.

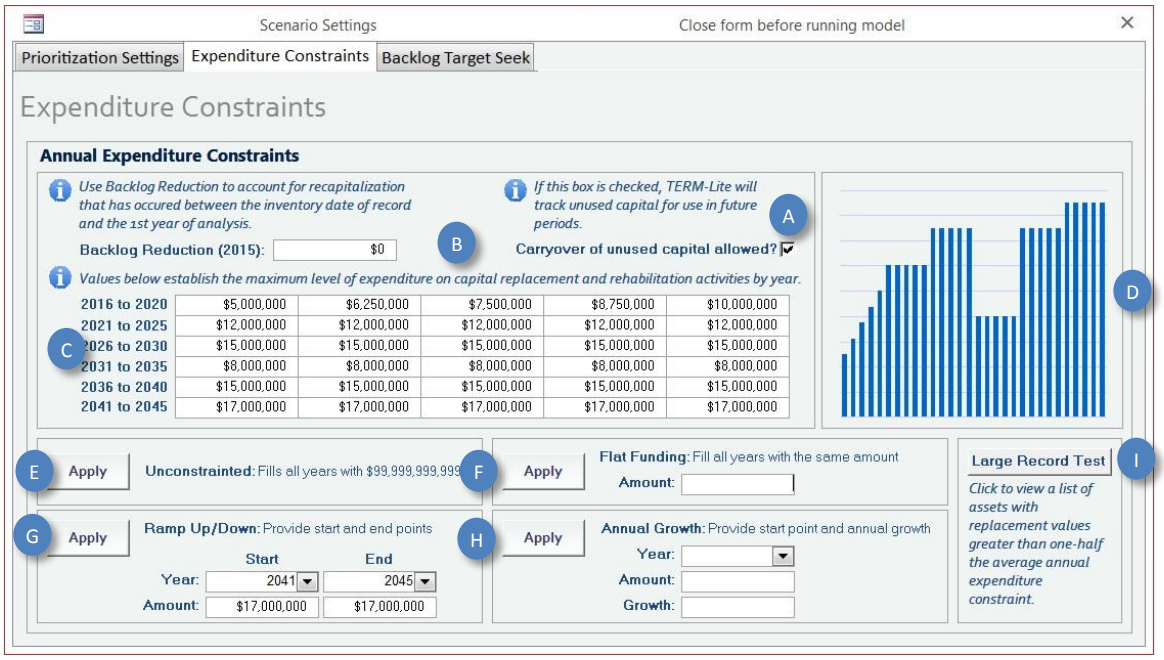
For a person who is using TERM for the first time, we recommend trying the following scenarios:

1. **Maintain Current Spending**: Enter $0 for year 0. For years 1 to 20 enter your agency's average level of annual capital reinvestment for the past 5 to 10 years. You may want to take inflation into account when assigning maximum expenditure values for each forecast year. This scenario will help you understand the impact on the SGR backlog and prioritization if your agency continues to reinvest at the current (historical) rate.
2. **Maintain Backlog**: Enter test values for years 1 to 20 (enter same value for each year) and run the model multiple times until value of backlog in year 20 is approximately equal to the value in year 0. This scenario will help you understand what level of investment will maintain the current size of the backlog (either in dollar terms or as a percent of all asset holdings).
3. **SGR in 20 Years**: Enter test values for years 1 to 20 (e.g., enter same value for each year) and run the model multiple times until value of SGR backlog = $0 in year 20. This scenario will help you understand what level of annual reinvestment is required to eliminate the SGR backlog in 20 years. This approach can be used to determine the level of investment attain SGR in 15 years, 10 years or other time frame.
4. **Un-constrained**: Enter a very high level of investment (e.g., $500B) for years 0 (backlog year) through year 20. This scenario will illustrate (1) the level of investment required to attain SGR in a single year and (2) the average annual level of reinvestment to maintain SGR thereafter. This latter amount is an important quantity to be aware of as your agency's investment profile must be higher than this amount to reduce any existing SGR backlog.

A typical funding profile in an asset management plan will reflect one flat funding profile for say, 10 years in order to bring the portfolio condition to a desired level followed by a second, usually lower flat funding profile needed to maintain that same condition into the future.

The tool includes convenience features to help you enter funding scenarios quickly.

Exhibit 5 – Expenditure Constraints Tab



Step 3-5 Enable and Configure the Backlog Target Seek Feature

Backlog Target Seek is a feature of TERM Lite wherein the model determines the annual funding based on a defined desired outcome. The outcome is defined by two variables: Backlog Target and Target Year.

Click on the 'Backlog Target Seek' tab. Configure the following three items:

1. **'Apply Backlog Target Seek' checkbox** – Checking this box will cause TERM Lite to ignore the Expenditure Constraints established in the previous step. Instead, the model will compute the amount needed to achieve a desired backlog reduction over a given period. Backlog will be reduced linearly over this period and then maintained for the duration of the analysis.
2. **'Backlog Target'** – Enter a percentage that represents the desired goal over time. For example, if the existing backlog is $100 million, and the desired level of backlog is $65 million, enter a value of 65%.
3. **Target Year** – Enter the year of analysis (1 to 30) at which point the desired backlog will be achieved.

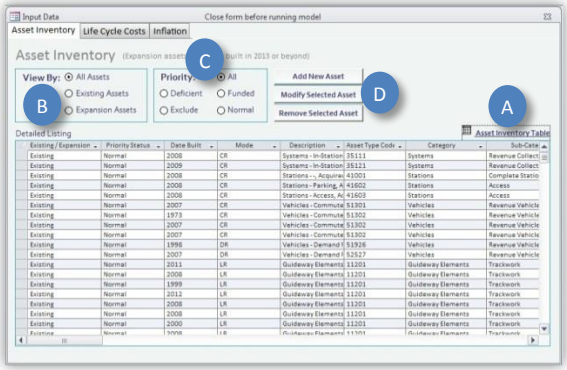
Step 3-6 Navigate to and Modify Input Data

Return to the Home menu by either bringing the window into focus by clicking on it or close the Scenario Settings window by clicking the "X" in the top right corner of that window. Click on the "Modify Input Data" button (refer to Exhibit 3-C).

Step 3-7 Edit Asset Inventory

If it is not already visible, click on the “Asset Inventory” tab. This form will allow you to add, modify, or delete inventory records one asset at a time. To make changes to the data more quickly, consider editing the data in the Excel Inventory Publisher and reimport the data or open the underlying data table by clicking the “Asset Inventory Table” link (refer to Exhibit 6-A).

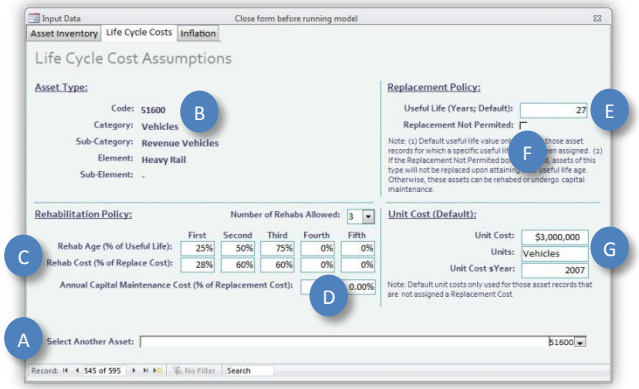
Exhibit 6 – Input Data Form - Asset Inventory



Step 3-8 Edit Life Cycle Costs

Click on the “Life Cycle Costs” tab. This form defines the timing and cost of all life cycle events for each asset type including rehabs (up to five), replacement, or annual capital maintenance (the latter an annual level of expenditure, set as a percent of the assets replacement cost, and intended to cover low cost and frequent capital reinvestment needs). The user can alter these values to either define the rehab/replacement policy or design a scenario.

Exhibit 7 – Input Data – Life Cycle Cost Assumptions



Use the pull down list at the bottom of this form labeled “Select Another Asset” to toggle through the list (refer to Exhibit 7-A). As you toggle through each asset type, the code, categories and elements will be displayed in the top left quadrant of the form (Exhibit 7-B).

In the bottom left quadrant section labeled “Rehabilitation Policy”, select number of life-cycle rehabs (up to five) and for each rehab enter 1) timing based on percent of useful life and 2) the cost as a percentage of asset replacement cost (refer to Exhibit 7-C). Enter any annual capital maintenance as percentage of asset replacement cost (refer to Exhibit 7-D).

In the top right quadrant labeled “Replacement Policy”, enter the default asset useful life for each asset type (refer to Exhibit 7-E). This value will only be used for any assets in the inventory that do not have a useful life provided. In this same quadrant, check the box labeled “Replacement Not Permitted” for assets such as tunnels which undergo ongoing rehabilitation but which agencies are unlikely to ever “replace” (refer to Exhibit 7-F).

In the bottom right quadrant, provide the default unit replacement cost, unit of measure and cost basis year (Exhibit 7-G). Some of these values can be overridden at the asset inventory level for special cases.

Step 3-9 Edit Inflation

Click on the “Inflation” tab. You have two options for setting inflation behavior:

1. **Base year dollars**: Denominated in “start year” dollars based on the start year value entered on main menu.
2. **Year of Expenditure ($YOE)**: The annual inflation rate is determined by the User Rate entered in the form

Start by choosing which if the two options you prefer. If you choose “Year of Expenditure,” you must also provide the User Rate of annual inflation. The User Rate applies the same annual rate of inflation to all forecast years and is only applied to future year reinvestment costs (it does not impact budget constraint or other measures).

***Note**: If the user chooses “Base year dollars,” the User Rate of annual inflation field will not be available. All costs will be shown in the year entered for “Start Year” (refer to Step 3-10 below).*

Enter a Sensitivity factor to increase or decrease all replacement costs by the same percent amount. This is useful if you need to assess the sensitivity of analysis results to future costs. Entering 200% would double all costs in all analysis years.

Step 3-10 Set Start Year

Return to the main menu. Enter the “Start Year” for your model run (refer to Exhibit 3-D). This is “year 0” for a model run. Ideally, the start year is set to year of your most recent inventory update. The current state-of-good repair (SGR) backlog is measured from this date.

Step 3-11 Set Period

Use the pull-down menu (refer to Exhibit 3-E) to select a 20-year or 30-year analysis.

Step 3-12 Set Useful Life factor

Also on the main menu, enter the Useful Life Factor (refer to Exhibit 3-F). This will cause TERM to reduce or extend the time that all of the assets are retained prior to replacement. This does not impact an asset's expected useful life, only the timing of its replacement. For example, if the factor is set to 125%, a bus with a 12-year useful life still exceeds useful life after age 12 (and enters the backlog), but it is not replaced until age 15 years (12x1.25).

Step 3-13 Run the TERM Model

From the main menu, click the button labeled "Run Model" (refer to Exhibit 3-G). You can watch the progress of the model by observing the "Run Status" indicator, the "Current Record", and the "Replacement Year" fields. The duration of a single simulation will vary from a few seconds to several minutes depending on the quantity of data and the computer hardware used to run the model.

Step 3-14 View Results as Reports

From the main menu, click the button labeled "Print Reports" (refer to Exhibit 3-H). You can select and view the reports on your screen or print them for your convenience. Clicking the "Data (Read Only)" button on the Print Reports pop-up menu will present the data underlying the selected chart name. This data can then be copied and pasted in to a workbook for further analysis. It is suggested that the user select and open each of these reports to become familiar with their purpose and content. A listing of TERM Lite reports is provided below in Exhibit 8.

Exhibit 8 – List of available reports

Report Name
Asset Inventory Record Ages
Asset Inventory Replacement Value
Asset Types
Asset Rehab-Replace Policy
Current Condition Distribution
Condition Distribution Forecast
Expenditures Forecast
Expenditures Forecast – Asset Level Detail (10 Yr)
Over Age Asset Forecast
Priority Scores: Backlog Investment by Asset Type (Base 100)
Priority Scores: Summary Scores By Asset Type for Next 10 Years
SGR Backlog Forecast

Step 3-15 Export to Excel

From the main menu, click the button labeled "Export to Excel" (refer to Exhibit 3-I). MS Excel (if installed) will launch and a new workbook will be populated with a series of charts that present select analyses results of your TERM run. These charts can be copied and used in reports and presentations.

Step 3-16 View Output (Advanced Users)

If desired, the user can view the raw output from the analysis. From the main menu, click the button labeled “View Output” (refer to Exhibit 3-J). This will present the detailed, asset record level from the last model run, including the asset’s identification information, investment prioritization scoring, replacement needs forecast, SGR backlog forecast, condition forecast and age forecast.

Appendix A – Asset Classification

Type	Category	Sub-Category	Element	Sub-Element
10000	Guideway Elements	Guideway	-	-
10001	Guideway Elements	Guideway	-	Commuter Rail
10002	Guideway Elements	Guideway	-	Heavy Rail
10003	Guideway Elements	Guideway	-	Light Rail
10110	Guideway Elements	Guideway	At Grade Ballast	-
10111	Guideway Elements	Guideway	At Grade Ballast	Commuter Rail
10112	Guideway Elements	Guideway	At Grade Ballast	Heavy Rail
10113	Guideway Elements	Guideway	At Grade Ballast	Light Rail
10120	Guideway Elements	Guideway	At Grade Ballast	-
10121	Guideway Elements	Guideway	At Grade Ballast	Expressway Commuter Rail
10122	Guideway Elements	Guideway	At Grade Ballast	Expressway Heavy Rail
10123	Guideway Elements	Guideway	At Grade Ballast	Expressway Light Rail
10200	Guideway Elements	Guideway	At Grade-In-Street	-
10205	Guideway Elements	Guideway	At Grade-In-Street	Ductbank
10206	Guideway Elements	Guideway	At Grade-In-Street	Manhole
10210	Guideway Elements	Guideway	At Grade-In-Street	Grade Crossing
10211	Guideway Elements	Guideway	At Grade-In-Street	Grade Crossing Commuter Rail
10212	Guideway Elements	Guideway	At Grade-In-Street	Grade Crossing Heavy Rail
10213	Guideway Elements	Guideway	At Grade-In-Street	Grade Crossing Light Rail
10215	Guideway Elements	Guideway	At Grade-In-Street	Grade Crossing - Panelled
10216	Guideway Elements	Guideway	At Grade-In-Street	Grade Crossing - Embedded
10310	Guideway Elements	Guideway	Elevated Structure	-
10311	Guideway Elements	Guideway	Elevated Structure	Commuter Rail
10312	Guideway Elements	Guideway	Elevated Structure	Heavy Rail
10313	Guideway Elements	Guideway	Elevated Structure	Light Rail
10320	Guideway Elements	Guideway	Elevated Structure	Steel Viaducts
10321	Guideway Elements	Guideway	Elevated Structure	Steel Viaducts Commuter Rail
10322	Guideway Elements	Guideway	Elevated Structure	Steel Viaducts Heavy Rail
10323	Guideway Elements	Guideway	Elevated Structure	Steel Viaducts Light Rail
10330	Guideway Elements	Guideway	Elevated Structure	Bridge

Type	Category	Sub-Category	Element	Sub-Element
10331	Guideway Elements	Guideway	Elevated Structure	Bridge Commuter Rail
10332	Guideway Elements	Guideway	Elevated Structure	Bridge Heavy Rail
10333	Guideway Elements	Guideway	Elevated Structure	Bridge Light Rail
10340	Guideway Elements	Guideway	Elevated Structure	Foot Walk
10400	Guideway Elements	Guideway	Elevated Fill	-
10401	Guideway Elements	Guideway	Elevated Fill	Commuter Rail
10402	Guideway Elements	Guideway	Elevated Fill	Heavy Rail
10403	Guideway Elements	Guideway	Elevated Fill	Light Rail
10500	Guideway Elements	Guideway	Underground	-
10501	Guideway Elements	Guideway	Underground	Commuter Rail
10502	Guideway Elements	Guideway	Underground	Heavy Rail
10503	Guideway Elements	Guideway	Underground	Light Rail
10510	Guideway Elements	Guideway	Underground	Tunnel
10511	Guideway Elements	Guideway	Underground	Tunnel Commuter Rail
10512	Guideway Elements	Guideway	Underground	Tunnel Heavy Rail
10513	Guideway Elements	Guideway	Underground	Tunnel Light Rail
10520	Guideway Elements	Guideway	Underground	Cut & Cover
10521	Guideway Elements	Guideway	Underground	Cut & Cover Commuter Rail
10522	Guideway Elements	Guideway	Underground	Cut & Cover Heavy Rail
10523	Guideway Elements	Guideway	Underground	Cut & Cover Light Rail
10530	Guideway Elements	Guideway	Underground	Foot Walk
10540	Guideway Elements	Guideway	Underground	Tube
10541	Guideway Elements	Guideway	Underground	Tube Commuter Rail
10542	Guideway Elements	Guideway	Underground	Tube Heavy Rail
10543	Guideway Elements	Guideway	Underground	Tube Light Rail
10600	Guideway Elements	Guideway	Retained Cut	-
10601	Guideway Elements	Guideway	Retained Cut	Commuter Rail
10602	Guideway Elements	Guideway	Retained Cut	Heavy Rail
10603	Guideway Elements	Guideway	Retained Cut	Light Rail
10605	Guideway Elements	Guideway	Retained Cut	Box Culvert
11000	Guideway Elements	Trackwork	-	-
11100	Guideway Elements	Trackwork	Direct Fixation	-

Type	Category	Sub-Category	Element	Sub-Element
11101	Guideway Elements	Trackwork	Direct Fixation	Tangent
11102	Guideway Elements	Trackwork	Direct Fixation	Curve
11103	Guideway Elements	Trackwork	Direct Fixation	Guarded
11104	Guideway Elements	Trackwork	Direct Fixation	Platform Tangent
11105	Guideway Elements	Trackwork	Direct Fixation	Platform Curved
11106	Guideway Elements	Trackwork	Direct Fixation	Platform Guarded
11200	Guideway Elements	Trackwork	Ballasted	-
11201	Guideway Elements	Trackwork	Ballasted	Tangent
11202	Guideway Elements	Trackwork	Ballasted	Curve
11203	Guideway Elements	Trackwork	Ballasted	Guarded
11204	Guideway Elements	Trackwork	Ballasted	Platform Tangent
11205	Guideway Elements	Trackwork	Ballasted	Platform Curved
11206	Guideway Elements	Trackwork	Ballasted	Platform Guarded
11211	Guideway Elements	Trackwork	Ballasted	Tangent - Concrete Tie
11212	Guideway Elements	Trackwork	Ballasted	Tangent - Wood Tie
11213	Guideway Elements	Trackwork	Ballasted	Curve - Concrete Tie
11214	Guideway Elements	Trackwork	Ballasted	Curve - Wood Tie
11300	Guideway Elements	Trackwork	Embedded	-
11301	Guideway Elements	Trackwork	Embedded	Tangent
11302	Guideway Elements	Trackwork	Embedded	Curve
11303	Guideway Elements	Trackwork	Embedded	At-Grade Crossings
11400	Guideway Elements	Trackwork	Special	-
11401	Guideway Elements	Trackwork	Special	Diamond Crossover
11402	Guideway Elements	Trackwork	Special	Direct Fixation Diamond Crossover
11403	Guideway Elements	Trackwork	Special	Ballasted Diamond Crossover
11404	Guideway Elements	Trackwork	Special	Single Crossover
11405	Guideway Elements	Trackwork	Special	Direct Fixation Single Crossover
11406	Guideway Elements	Trackwork	Special	Ballasted Single Crossover
11407	Guideway Elements	Trackwork	Special	Turnout
11408	Guideway Elements	Trackwork	Special	Direct Fixation Turnout
11409	Guideway Elements	Trackwork	Special	Ballasted Turnout
11410	Guideway Elements	Trackwork	Special	Turntable

Type	Category	Sub-Category	Element	Sub-Element
11500	Guideway Elements	Trackwork	Yard	-
11600	Guideway Elements	Trackwork	Ties	-
11601	Guideway Elements	Trackwork	Ties	Wood
11602	Guideway Elements	Trackwork	Ties	Concrete
12000	Guideway Elements	Special Structures	-	-
12100	Guideway Elements	Special Structures	Fencing	-
12200	Guideway Elements	Special Structures	Retaining Walls	-
13000	Guideway Elements	Bus Guideway	-	-
13100	Guideway Elements	Bus Guideway	At Grade	-
13200	Guideway Elements	Bus Guideway	Turnaround	-
13300	Guideway Elements	Bus Guideway	Elevated Fill	-
13400	Guideway Elements	Bus Guideway	Elevated Structure	-
13410	Guideway Elements	Bus Guideway	Elevated Structure	Elevated Roadway
13420	Guideway Elements	Bus Guideway	Elevated Structure	Bridge
13500	Guideway Elements	Bus Guideway	Subway	-
20000	Facilities	-	-	-
21000	Facilities	Buildings	-	-
21100	Facilities	Buildings	Administration	-
21120	Facilities	Buildings	Administration	Police
21200	Facilities	Buildings	Maintenance	-
21210	Facilities	Buildings	Maintenance	Bus
21211	Facilities	Buildings	Maintenance	Bus Stratum 1 < 200 Vehicles
21212	Facilities	Buildings	Maintenance	Bus Stratum 1 200 to 300 Vehicles
21213	Facilities	Buildings	Maintenance	Bus Stratum 1 > 300 Vehicles
21214	Facilities	Buildings	Maintenance	Bus Stratum 2 < 200 Vehicles
21215	Facilities	Buildings	Maintenance	Bus Stratum 2 200 to 300 Vehicles
21216	Facilities	Buildings	Maintenance	Bus Stratum 3 < 200 Vehicles
21217	Facilities	Buildings	Maintenance	Bus Stratum 3 200 to 300 Vehicles
21218	Facilities	Buildings	Maintenance	Bus Stratum 4 < 200 Vehicles
21219	Facilities	Buildings	Maintenance	Bus Stratum 4 200 to 300 Vehicles
21220	Facilities	Buildings	Maintenance	Rail
21221	Facilities	Buildings	Maintenance	Rail Commuter Rail

Type	Category	Sub-Category	Element	Sub-Element
21222	Facilities	Buildings	Maintenance	Rail Heavy Rail
21223	Facilities	Buildings	Maintenance	Rail Light Rail
21230	Facilities	Buildings	Maintenance	Utilities
21500	Facilities	Buildings	-	-
21501	Facilities	Buildings	Building Components	Electrical
21502	Facilities	Buildings	Building Components	Fire Alarm
21503	Facilities	Buildings	Building Components	Plumbing
21504	Facilities	Buildings	Building Components	Drainage
21505	Facilities	Buildings	Building Components	HVAC
21506	Facilities	Buildings	Building Components	Boiler
21507	Facilities	Buildings	Building Components	Roof
21508	Facilities	Buildings	Building Components	Exterior
21509	Facilities	Buildings	Building Components	Access and Parking
21510	Facilities	Buildings	Building Components	Elevators and Conveying Systems
21511	Facilities	Buildings	Building Components	Built-in Equipment and Specialties
21512	Facilities	Buildings	Building Components	Generators
21513	Facilities	Buildings	Building Components	Interior
21514	Facilities	Buildings	Building Components	Fencing
21515	Facilities	Buildings	Building Components	Other
22000	Facilities	Storage Yard	-	-
22200	Facilities	Storage Yard	-	-
22210	Facilities	Storage Yard	Rail	-
22211	Facilities	Storage Yard	Rail	Commuter Rail
22212	Facilities	Storage Yard	Rail	Heavy Rail
22213	Facilities	Storage Yard	Rail	Light Rail
22300	Facilities	Storage Yard	Bus	Bus Parking
22400	Facilities	Buildings	Bus Turnaround Facility	-
23000	Facilities	Equipment	-	-
23100	Facilities	Equipment	MIS/IT/Network Systems	-
23101	Facilities	Equipment	MIS/IT/Network Systems	Software
23102	Facilities	Equipment	MIS/IT/Network Systems	Computers/Hardware
23200	Facilities	Equipment	Furniture	-

Type	Category	Sub-Category	Element	Sub-Element
23300	Facilities	Equipment	Maintenance	-
23301	Facilities	Equipment	Maintenance	Bus
23310	Facilities	Equipment	Maintenance	Rail
23311	Facilities	Equipment	Maintenance	Rail Commuter Rail
23312	Facilities	Equipment	Maintenance	Rail Heavy Rail
23313	Facilities	Equipment	Maintenance	Rail Light Rail
23400	Facilities	Equipment	Maintenance	Pollution Treatment
23402	Facilities	Equipment	Maintenance	Bus Washer
23403	Facilities	Equipment	Maintenance	Train Washer
23404	Facilities	Equipment	Maintenance	Vehicle Paintbooth
23405	Facilities	Equipment	Maintenance	Fuel Island
23406	Facilities	Equipment	Maintenance	Dynamoneters
23407	Facilities	Equipment	Maintenance	Lifts - Portable
23408	Facilities	Equipment	Maintenance	Lifts - Fixed
23409	Facilities	Equipment	Maintenance	Wheel truing machines
23410	Facilities	Equipment	Maintenance	Brake Lathe
23411	Facilities	Equipment	Maintenance	Fuel Tank
23412	Facilities	Equipment	Maintenance	Lifts - Fixed: In Floor
23413	Facilities	Equipment	Maintenance	Lifts - Fixed: Parallelogram
23414	Facilities	Equipment	Maintenance	Wheel Presses
23415	Facilities	Equipment	Maintenance	Turntables, Truck
23416	Facilities	Equipment	Maintenance	Air Compressor
23417	Facilities	Equipment	Maintenance	Cart
23418	Facilities	Equipment	Maintenance	Hoist
23419	Facilities	Equipment	Maintenance	Scrubber, Sprayer
23420	Facilities	Equipment	Maintenance	Misc Equip
23430	Facilities	Equipment	Maintenance	CNG Refueling Station
24000	Facilities	Major Shops	-	-
24100	Facilities	Major Shops	Rail	-
24101	Facilities	Major Shops	Rail	Commuter Rail
24102	Facilities	Major Shops	Rail	Heavy Rail
24103	Facilities	Major Shops	Rail	Light Rail

Type	Category	Sub-Category	Element	Sub-Element
24200	Facilities	Major Shops	Bus	-
25000	Facilities	Central Control	-	-
30000	Systems	-	-	-
30001	Systems	CR	-	-
30002	Systems	HR	-	-
30003	Systems	LR	-	-
31000	Systems	Train Control	-	-
31001	Systems	Train Control	Commuter Rail	-
31002	Systems	Train Control	Heavy Rail	-
31003	Systems	Train Control	Light Rail	-
31100	Systems	Train Control	Wayside Train Control	-
31101	Systems	Train Control	Wayside Train Control	Commuter Rail
31102	Systems	Train Control	Wayside Train Control	Heavy Rail
31103	Systems	Train Control	Wayside Train Control	Light Rail
31110	Systems	Train Control	Wayside Train Control	Signals & Train Stops
31111	Systems	Train Control	Wayside Train Control	Signals & Train Stops Commuter Rail
31112	Systems	Train Control	Wayside Train Control	Signals & Train Stops Heavy Rail
31113	Systems	Train Control	Wayside Train Control	Signals & Train Stops Light Rail
31114	Systems	Train Control	Wayside Train Control	Automatic Transfer Panel
31115	Systems	Train Control	Wayside Train Control	Battery Equip
31116	Systems	Train Control	Wayside Train Control	Bonds
31117	Systems	Train Control	Wayside Train Control	Control Panel (local)
31118	Systems	Train Control	Wayside Train Control	Intrusion Detection Warning System
31119	Systems	Train Control	Wayside Train Control	Logical Controller
31120	Systems	Train Control	Wayside Train Control	Marker Coil
31121	Systems	Train Control	Wayside Train Control	Train Control Cable
31122	Systems	Train Control	Wayside Train Control	Signal Bridge
31123	Systems	Train Control	Wayside Train Control	Power Supplies
31124	Systems	Train Control	Wayside Train Control	Power Supplies-UPS
31125	Systems	Train Control	Wayside Train Control	Receiver
31126	Systems	Train Control	Wayside Train Control	Relays
31127	Systems	Train Control	Wayside Train Control	Relay Cabinet

Type	Category	Sub-Category	Element	Sub-Element
31128	Systems	Train Control	Wayside Train Control	Relay House (Bungalow)
31129	Systems	Train Control	Wayside Train Control	Repeater Signal
31130	Systems	Train Control	Wayside Train Control	RTU
31131	Systems	Train Control	Wayside Train Control	Signals
31132	Systems	Train Control	Wayside Train Control	STAP (Station Processor)
31133	Systems	Train Control	Wayside Train Control	TPSS Feeds
31134	Systems	Train Control	Wayside Train Control	Track Circuit
31135	Systems	Train Control	Wayside Train Control	Train Control Cable
31136	Systems	Train Control	Wayside Train Control	Train Stop
31137	Systems	Train Control	Wayside Train Control	Programmed Station Stop System
31138	Systems	Train Control	Wayside Train Control	Other
31200	Systems	Train Control	Onboard Train Control (cab signaling)	-
31201	Systems	Train Control	Onboard Train Control (cab signaling)	Onboard Computer Systems
31202	Systems	Train Control	Onboard Train Control (cab signaling)	Receiver
31203	Systems	Train Control	Onboard Train Control (cab signaling)	Other
31250	Systems	Train Control	Communications	-
31251	Systems	Train Control	Communications	Data Transmission Unit
31252	Systems	Train Control	Communications	Train Wayside Comm
31253	Systems	Train Control	Communications	Transmitter
31300	Systems	Train Control	Centralized Train Control	-
31301	Systems	Train Control	Centralized Train Control	Commuter Rail
31302	Systems	Train Control	Centralized Train Control	Heavy Rail
31303	Systems	Train Control	Centralized Train Control	Light Rail
31305	Systems	Train Control	Centralized Train Control	Control Room (central)
31306	Systems	Train Control	Centralized Train Control	Logical Controller
31307	Systems	Train Control	Centralized Train Control	Power Supplies
31308	Systems	Train Control	Centralized Train Control	Receiver
31400	Systems	Train Control	Roadway Crossings	-
31401	Systems	Train Control	Roadway Crossings	Commuter Rail
31402	Systems	Train Control	Roadway Crossings	Heavy Rail
31403	Systems	Train Control	Roadway Crossings	Light Rail
31404	Systems	Train Control	Roadway Crossings	Grade Crossing System

Type	Category	Sub-Category	Element	Sub-Element
31405	Systems	Train Control	Roadway Crossings	Crossing Gate Arm
31410	Systems	Roadway Traffic Signals	-	-
31500	Systems	Train Control	Interlockings	-
31510	Systems	Train Control	Interlockings	Switch Machine
31511	Systems	Train Control	Interlockings	Switch Machine - Manual Ballasted
31512	Systems	Train Control	Interlockings	Switch Machine - Motorized Ballasted
31513	Systems	Train Control	Interlockings	Switch Machine - Manual Embedded
31514	Systems	Train Control	Interlockings	Switch Machine - Motorized Embedded
31515	Systems	Train Control	Interlockings	Switch Heaters
32000	Systems	Electrification	-	-
32001	Systems	Electrification	-	Commuter Rail
32002	Systems	Electrification	-	Heavy Rail
32003	Systems	Electrification	-	Light Rail
32100	Systems	Electrification	Catenary	-
32101	Systems	Electrification	Catenary	Commuter Rail
32102	Systems	Electrification	Catenary	Heavy Rail
32103	Systems	Electrification	Catenary	Light Rail
32104	Systems	Electrification	Catenary Poles	Light Rail
32200	Systems	Electrification	Substations	-
32201	Systems	Electrification	Substations	Commuter Rail
32202	Systems	Electrification	Substations	Heavy Rail
32203	Systems	Electrification	Substations	Light Rail
32204	Systems	Electrification	Substations	AC Switchgear
32205	Systems	Electrification	Substations	DC Switchgear
32206	Systems	Electrification	Substations	Rectifier
32207	Systems	Electrification	Substations	Building
32208	Systems	Electrification	Substations	Battery
32209	Systems	Electrification	Substations	Charger
32210	Systems	Electrification	Substations	SCADA RTUs
32211	Systems	Electrification	Substations	Transformer
32212	Systems	Electrification	Substations	Generator

Type	Category	Sub-Category	Element	Sub-Element
32213	Systems	Electrification	Substations	High Tension Towers
32214	Systems	Electrification	Substations	Building Electrical
32215	Systems	Electrification	Substations	Fire Alarm
32216	Systems	Electrification	Substations	Plumbing
32217	Systems	Electrification	Substations	Drainage
32218	Systems	Electrification	Substations	HVAC
32219	Systems	Electrification	Substations	Roof
32220	Systems	Electrification	Substations	Exterior
32221	Systems	Electrification	Substations	Access
32222	Systems	Electrification	Substations	Elevators and Conveying Systems
32223	Systems	Electrification	Substations	Built-in Equipment and Specialties
32300	Systems	Electrification	Breaker House	-
32301	Systems	Electrification	Breaker House	Commuter Rail
32302	Systems	Electrification	Breaker House	Heavy Rail
32303	Systems	Electrification	Breaker House	Light Rail
32400	Systems	Electrification	Contact Rail	Contact Rail, Chairs, Anchor and Incline
32401	Systems	Electrification	Contact Rail	Contact Rail, Chairs, Anchor and Incline Commuter Rail
32402	Systems	Electrification	Contact Rail	Contact Rail, Chairs, Anchor and Incline Heavy Rail
32403	Systems	Electrification	Contact Rail	Contact Rail, Chairs, Anchor and Incline Light Rail
32404	Systems	Electrification	Contact Rail	Protection Boards
32405	Systems	Electrification	Contact Rail	3rd. RAIL DISCONNECT SWITCHES
32406	Systems	Electrification	Contact Rail	SHORT TIE EXTENSION BRACKETS
32407	Systems	Electrification	Contact Rail	REACTORS
32408	Systems	Electrification	Contact Rail	Heaters
32500	Systems	Electrification	Power Cable	-
32501	Systems	Electrification	Power Cable	Substations
32502	Systems	Electrification	Power Cable	Contact Rail
32600	Systems	Electrification	Building	Electrical Systems
32602	Systems	Electrification	Bridge	Electrical System

Type	Category	Sub-Category	Element	Sub-Element
32603	Systems	Electrification	SIGNAL LOAD	-
32604	Systems	Electrification	C-Case	-
32700	Systems	Electrification	Overhead Catenary	-
32701	Systems	Electrification	Overhead Catenary	Trolley Wire
32702	Systems	Electrification	Overhead Catenary	Decorative Streetlighting
32703	Systems	Electrification	Overhead Catenary	Ductbank
32704	Systems	Electrification	Overhead Catenary	Feed Span (+ and -)
32705	Systems	Electrification	Overhead Catenary	Manhole
32706	Systems	Electrification	Overhead Catenary	Poles and Foundation
32707	Systems	Electrification	Overhead Catenary	Pulleys
32708	Systems	Electrification	Overhead Catenary	Pole Grounding
32709	Systems	Electrification	Overhead Catenary	Tangent Span
33000	Systems	Communications	-	-
33001	Systems	Communications	-	Commuter Rail
33002	Systems	Communications	-	Heavy Rail
33003	Systems	Communications	-	Light Rail
33100	Systems	Communications	Cable Transmission System (CTS)	-
33101	Systems	Communications	Cable Transmission System (CTS)	Fiber Optic Cable Transmission System (FOCS)
33102	Systems	Communications	Cable Transmission System (CTS)	Cable
33103	Systems	Communications	Cable Transmission System (CTS)	Nodes
33104	Systems	Communications	Cable Transmission System (CTS)	MIS/IT/Network Systems
33200	Systems	Communications	Passenger Communications Systems	-
33201	Systems	Communications	Passenger Communications Systems	Public Address (PA)
33202	Systems	Communications	Passenger Communications Systems	Transit Passenger Information Systems (TPIS)
33203	Systems	Communications	Passenger Communications Systems	Variable Message Signs (VMS)
33204	Systems	Communications	Passenger Communications Systems	On-board vehicle
33205	Systems	Communications	Passenger Communications Systems	Passenger Emergency (Blue Light) Phones
33300	Systems	Communications	Safety and Security	-
33301	Systems	Communications	Safety and Security	Emergency Location System
33302	Systems	Communications	Safety and Security	Emergency Management Panel (EMP)

Type	Category	Sub-Category	Element	Sub-Element
33303	Systems	Communications	Safety and Security	Fire & Emergency Management System (F&EM)
33304	Systems	Communications	Safety and Security	Fire Management Panel
33305	Systems	Communications	Safety and Security	Gas Monitoring System
33306	Systems	Communications	Safety and Security	Gas fire suppression system
33307	Systems	Communications	Safety and Security	Intrusion Detection System (IDS)
33308	Systems	Communications	Safety and Security	Seismic Monitoring System
33309	Systems	Communications	Safety and Security	CCTV
33310	Systems	Communications	Safety and Security	CCTV -- Fixed
33311	Systems	Communications	Safety and Security	CCTV -- On-board vehicle
33400	Systems	Communications	Phone System	-
33401	Systems	Communications	Phone System	Phone System
33402	Systems	Communications	Phone System	PBX
33403	Systems	Communications	Phone System	Telephones
33404	Systems	Communications	Phone System	Fax
33500	Systems	Communications	Radio	-
33600	Systems	Communications	Radio	Bus Radio
33700	Systems	Communications	Radio	Base Radio Stations
33701	Systems	Communications	Radio	Radio Antenna
33702	Systems	Communications	Radio	Mobile Radios
33703	Systems	Communications	Radio	Mobile Radios, Handpack
33704	Systems	Communications	Radio	Transmitter
33800	Systems	Communications	SCADA	-
33801	Systems	Communications	SCADA	Programmable Logic Controller (PLC)
33815	Systems	Communications	SCADA	RTU
33816	Systems	Communications	SCADA	Rectifier
33817	Systems	Communications	SCADA	AIM
33818	Systems	Communications	SCADA	ATC
33819	Systems	Communications	SCADA	IDS
33820	Systems	Communications	SCADA	TRACS
33821	Systems	Communications	SCADA	Other
33850	Systems	Communications	Communications Huts	Hut

Type	Category	Sub-Category	Element	Sub-Element
33851	Systems	Communications	Communications Huts	Room
34000	Systems	Revenue Collection	Central Revenue Collection	-
34001	Systems	Revenue Collection	Central Revenue Collection	Commuter Rail
34002	Systems	Revenue Collection	Central Revenue Collection	Heavy Rail
34003	Systems	Revenue Collection	Central Revenue Collection	Light Rail
34100	Systems	Revenue Collection	Central Revenue Collection	Coin Counters
34101	Systems	Revenue Collection	Central Revenue Collection	Coin Counters - Commuter Rail
34102	Systems	Revenue Collection	Central Revenue Collection	Coin Counters - Heavy Rail
34103	Systems	Revenue Collection	Central Revenue Collection	Coin Counters - Light Rail
34104	Systems	Revenue Collection	Central Revenue Collection	Bill Counters
34105	Systems	Revenue Collection	Central Revenue Collection	Vault
34106	Systems	Revenue Collection	Central Revenue Collection	Software
35000	Systems	Revenue Collection	-	-
35001	Systems	Revenue Collection	-	Commuter Rail
35002	Systems	Revenue Collection	-	Heavy Rail
35003	Systems	Revenue Collection	-	Light Rail
35100	Systems	Revenue Collection	In-Station	-
35101	Systems	Revenue Collection	In-Station	Commuter Rail
35102	Systems	Revenue Collection	In-Station	Heavy Rail
35103	Systems	Revenue Collection	In-Station	Light Rail
35104	Systems	Revenue Collection	In-Station	Turnstiles
35110	Systems	Revenue Collection	In-Station	System
35111	Systems	Revenue Collection	In-Station	System Commuter Rail
35112	Systems	Revenue Collection	In-Station	System Heavy Rail
35113	Systems	Revenue Collection	In-Station	System Light Rail
35115	Systems	Revenue Collection	In-Station	TVMs
35116	Systems	Revenue Collection	In-Station	Encoding Machine
35117	Systems	Revenue Collection	In-Station	Parking Meters
35118	Systems	Revenue Collection	In-Station	Change Machines
35120	Systems	Revenue Collection	In-Station	Fare Control System
35121	Systems	Revenue Collection	In-Station	Fare Control System Commuter Rail
35122	Systems	Revenue Collection	In-Station	Fare Control System Heavy Rail

Type	Category	Sub-Category	Element	Sub-Element
35123	Systems	Revenue Collection	In-Station	Fare Control System Light Rail
35130	Systems	Revenue Collection	In-Station	Passenger Counters
35131	Systems	Revenue Collection	In-Station	Passenger Counters Commuter Rail
35132	Systems	Revenue Collection	In-Station	Passenger Counters Heavy Rail
35133	Systems	Revenue Collection	In-Station	Passenger Counters Light Rail
35200	Systems	Revenue Collection	On-Vehicle	-
35201	Systems	Revenue Collection	On-Vehicle	Fareboxes
36000	Systems	Utilities	-	-
36100	Systems	Utilities	Lighting	-
36101	Systems	Utilities	Lighting	Subway
36102	Systems	Utilities	Lighting	Yard
36103	Systems	Utilities	Lighting	Station
36200	Systems	Utilities	Drainage	-
36201	Systems	Utilities	Drainage	Subway
36202	Systems	Utilities	Pump Rooms	Subway
36203	Systems	Utilities	Deep Wells	Subway
36204	Systems	Utilities	Sump Pumps	Subway
36205	Systems	Utilities	Sump Pump Discharge Pipes	Subway
36206	Systems	Utilities	Fire Protection Plumbing	Subway
36301	Systems	Utilities	Ventilation	Subway
36302	Systems	Utilities	Fan Plants	Subway
36303	Systems	Utilities	Compressed Air Pipes	Subway
36304	Systems	Utilities	Air Conditioning/HVAC	Subway
36400	Systems	Utilities	Emergency Exits	Subway
36401	Systems	Utilities	Emergency Exits	Tunnel Handrail
37000	Systems	ITS	-	-
37001	Systems	ITS	APC	-
37002	Systems	ITS	AVL	-
37003	Systems	ITS	CAD	-
37004	Systems	ITS	GPS	-
40000	Stations	-	-	-
41000	Stations	Complete Station	-	-

Type	Category	Sub-Category	Element	Sub-Element
41001	Stations	Complete Station	Commuter Rail	-
41002	Stations	Complete Station	Heavy Rail	-
41003	Stations	Complete Station	Light Rail	-
41004	Stations	Complete Station	Bus	-
41005	Stations	Complete Station	Transfer Center	Bus
41006	Stations	Complete Station	Bus Stop Shelters	Bus
41200	Stations	Building	-	-
41201	Stations	Building	Commuter Rail	-
41202	Stations	Building	Heavy Rail	-
41203	Stations	Building	Light Rail	-
41204	Stations	Building	Bus	Bus
41210	Stations	Building	At-Grade / Center Platform	At-Grade / Center Platform
41211	Stations	Building	At-Grade / Center Platform	At-Grade / Center Platform Commuter Rail
41212	Stations	Building	At-Grade / Center Platform	At-Grade / Center Platform Heavy Rail
41213	Stations	Building	At-Grade / Center Platform	At-Grade / Center Platform Light Rail
41214	Stations	Building	At-Grade / Center Platform	At-Grade / Center Platform Bus
41220	Stations	Building	At-Grade / Center Platform	At-Grade / Side Platform
41221	Stations	Building	At-Grade / Center Platform	At-Grade / Side Platform Commuter Rail
41222	Stations	Building	At-Grade / Center Platform	At-Grade / Side Platform Heavy Rail
41223	Stations	Building	At-Grade / Center Platform	At-Grade / Side Platform Light Rail
41224	Stations	Building	At-Grade / Center Platform	At-Grade / Side Platform Bus
41230	Stations	Building	At-Grade / Center Platform	Elevated / Center Platform
41231	Stations	Building	At-Grade / Center Platform	Elevated / Center Platform Commuter Rail
41232	Stations	Building	At-Grade / Center Platform	Elevated / Center Platform Heavy Rail
41233	Stations	Building	At-Grade / Center Platform	Elevated / Center Platform Light Rail
41234	Stations	Building	At-Grade / Center Platform	Elevated / Center Platform Bus
41240	Stations	Building	At-Grade / Center Platform	Elevated / Side Platform
41241	Stations	Building	At-Grade / Center Platform	Elevated / Side Platform Commuter Rail
41242	Stations	Building	At-Grade / Center Platform	Elevated / Side Platform Heavy Rail
41243	Stations	Building	At-Grade / Center Platform	Elevated / Side Platform Light Rail
41244	Stations	Building	At-Grade / Center Platform	Elevated / Side Platform Bus
41250	Stations	Building	At-Grade / Center Platform	Subway / Center Platform

Type	Category	Sub-Category	Element	Sub-Element
41251	Stations	Building	At-Grade / Center Platform	Subway / Center Platform Commuter Rail
41252	Stations	Building	At-Grade / Center Platform	Subway / Center Platform Heavy Rail
41253	Stations	Building	At-Grade / Center Platform	Subway / Center Platform Light Rail
41254	Stations	Building	At-Grade / Center Platform	Subway / Center Platform Bus
41260	Stations	Building	At-Grade / Center Platform	Subway / Side Platform
41261	Stations	Building	At-Grade / Center Platform	Subway / Side Platform Commuter Rail
41262	Stations	Building	At-Grade / Center Platform	Subway / Side Platform Heavy Rail
41263	Stations	Building	At-Grade / Center Platform	Subway / Side Platform Light Rail
41264	Stations	Building	At-Grade / Center Platform	Subway / Side Platform Bus
41270	Stations	Building	Building Components	Shelter
41280	Stations	Building	Building Components	Token Booth
41281	Stations	Building	Building Components	-
41282	Stations	Building	Building Components	Lighting
41283	Stations	Building	Building Components	Station Attendant Booth
41284	Stations	Building	Building Components	Interior
41290	Stations	Building	Building Components	Building Electrical
41291	Stations	Building	Building Components	Fire Alarm
41292	Stations	Building	Building Components	Plumbing
41293	Stations	Building	Building Components	Drainage
41294	Stations	Building	Building Components	HVAC
41295	Stations	Building	Building Components	Roof
41296	Stations	Building	Building Components	Exterior
41297	Stations	Building	Building Components	Emergency backup system: UPS
41298	Stations	Building	Building Components	Emergency backup system: Generator
41299	Stations	Building	Building Components	Other
41400	Stations	Access	Elevators	-
41500	Stations	Access	Escalators	-
41600	Stations	Access	Parking	-
41601	Stations	Access	Parking	Garage
41602	Stations	Access	Parking	Lot
41603	Stations	Access	Parking	Park & Ride
41604	Stations	Access	Parking & Equipment	-

Type	Category	Sub-Category	Element	Sub-Element
41605	Stations	Access	Misc. Parking	-
41650	Stations	Access	Roadway Access	-
41700	Stations	Access	Pedestrian Walkway	-
41701	Stations	Access	Pedestrian Walkway	Elevated
41702	Stations	Access	Pedestrian Walkway	Subway
41800	Stations	Platform	Platform	-
41801	Stations	Platform	At-Grade	Center Platform
41802	Stations	Platform	At-Grade	Side Platform
41803	Stations	Platform	Elevated	Center Platform
41804	Stations	Platform	Elevated	Side Platform
41805	Stations	Platform	Subway	Center Platform
41806	Stations	Platform	Subway	Side Platform
41807	Stations	Platform	Platform	Concrete
41808	Stations	Platform	Platform	Asphalt
41809	Stations	Platform	Platform	Tile
41810	Stations	Platform	Platform	Wood
41811	Stations	Platform	Platform	Lighting
41812	Stations	Platform	Canopy	-
41813	Stations	Platform	Canopy	Commuter Rail
41814	Stations	Platform	Canopy	Heavy Rail
41815	Stations	Platform	Canopy	Light Rail
41816	Stations	Platform	Canopy	Bus
41900	Stations	Signage & Graphics	-	-
41901	Stations	Signage & Graphics	Electronic	-
41902	Stations	Signage & Graphics	Static	-
43000	Stations	Ferry	-	-
43010	Stations	Ferry	Building	-
43020	Stations	Ferry	Dock	-
50000	Vehicles	-	-	-
51000	Vehicles	Revenue Vehicles	-	-
51100	Vehicles	Revenue Vehicles	Automated Guideway	-
51101	Vehicles	Revenue Vehicles	Automated Guideway	AGT

Type	Category	Sub-Category	Element	Sub-Element
51102	Vehicles	Revenue Vehicles	Automated Guideway	Monorail
51200	Vehicles	Revenue Vehicles	Cable Car	-
51201	Vehicles	Revenue Vehicles	Cable Car	Cable Car
51300	Vehicles	Revenue Vehicles	Commuter Rail	-
51301	Vehicles	Revenue Vehicles	Commuter Rail	Revenue Locomotive
51302	Vehicles	Revenue Vehicles	Commuter Rail	Passenger Car
51303	Vehicles	Revenue Vehicles	Commuter Rail	Self-Propelled Passenger Car
51500	Vehicles	Revenue Vehicles	Ferry Boat	-
51501	Vehicles	Revenue Vehicles	Ferry Boat	Ferry Boat
51600	Vehicles	Revenue Vehicles	Heavy Rail	-
51601	Vehicles	Revenue Vehicles	Heavy Rail	Heavy Rail
51900	Vehicles	Revenue Vehicles	Bus	-
51901	Vehicles	Revenue Vehicles	Bus	Articulated Bus (60 ft)
51902	Vehicles	Revenue Vehicles	Bus	BRT Vehicle
51903	Vehicles	Revenue Vehicles	Bus	Bus (40 ft)
51904	Vehicles	Revenue Vehicles	Bus	Bus (35 ft)
51905	Vehicles	Revenue Vehicles	Bus	Bus (30 ft)
51906	Vehicles	Revenue Vehicles	Bus	Bus (<30 ft)
51907	Vehicles	Revenue Vehicles	Bus	Double Decker Bus
51908	Vehicles	Revenue Vehicles	Bus	School Bus
51911	Vehicles	Revenue Vehicles	Bus	Motor Bus - Other
51912	Vehicles	Revenue Vehicles	Bus	Over-the-Road Coach
51921	Vehicles	Revenue Vehicles	Bus	Articulated Bus (60 ft) - Diesel
51922	Vehicles	Revenue Vehicles	Bus	BRT Vehicle - Diesel
51923	Vehicles	Revenue Vehicles	Bus	Bus (40 ft) - Diesel
51924	Vehicles	Revenue Vehicles	Bus	Bus (35 ft) - Diesel
51925	Vehicles	Revenue Vehicles	Bus	Bus (30 ft) - Diesel
51926	Vehicles	Revenue Vehicles	Bus	Bus (<30 ft) - Diesel
51931	Vehicles	Revenue Vehicles	Bus	Articulated Bus (60 ft) - Hybrid
51932	Vehicles	Revenue Vehicles	Bus	BRT Vehicle - Hybrid
51933	Vehicles	Revenue Vehicles	Bus	Bus (40 ft) - Hybrid
51934	Vehicles	Revenue Vehicles	Bus	Bus (35 ft) - Hybrid

Type	Category	Sub-Category	Element	Sub-Element
51935	Vehicles	Revenue Vehicles	Bus	Bus (30 ft) - Hybrid
51936	Vehicles	Revenue Vehicles	Bus	Bus (<30 ft) - Hybrid
51941	Vehicles	Revenue Vehicles	Bus	Articulated Bus (60 ft) - CNG
51942	Vehicles	Revenue Vehicles	Bus	BRT Vehicle - CNG
51943	Vehicles	Revenue Vehicles	Bus	Bus (40 ft) - CNG
51944	Vehicles	Revenue Vehicles	Bus	Bus (35 ft) - CNG
51945	Vehicles	Revenue Vehicles	Bus	Bus (30 ft) - CNG
51946	Vehicles	Revenue Vehicles	Bus	Bus (<30 ft) - CNG
52000	Vehicles	Revenue Vehicles	Light Rail	-
52001	Vehicles	Revenue Vehicles	Light Rail	LRV
52002	Vehicles	Revenue Vehicles	Light Rail	Street Car
52003	Vehicles	Revenue Vehicles	Light Rail	Historic Street Car
52100	Vehicles	Revenue Vehicles	Trolleybus	-
52101	Vehicles	Revenue Vehicles	Trolleybus	Trolleybus
52301	Vehicles	Revenue Vehicles	Vans, Cutaways and Autos	Automobile
52521	Vehicles	Revenue Vehicles	Vans, Cutaways and Autos	Heavy-Duty Van
52522	Vehicles	Revenue Vehicles	Vans, Cutaways and Autos	Super Medium-Duty Van
52523	Vehicles	Revenue Vehicles	Vans, Cutaways and Autos	Medium-Duty Van
52524	Vehicles	Revenue Vehicles	Vans, Cutaways and Autos	Light-Duty Van
52525	Vehicles	Revenue Vehicles	Vans, Cutaways and Autos	Mini-Van
52526	Vehicles	Revenue Vehicles	Vans, Cutaways and Autos	Raised Roof Van
52527	Vehicles	Revenue Vehicles	Vans, Cutaways and Autos	SUV
53000	Vehicles	Non-Revenue Vehicles	-	-
53001	Vehicles	Non-Revenue Vehicles	Car	-
53002	Vehicles	Non-Revenue Vehicles	Truck	-
53003	Vehicles	Non-Revenue Vehicles	Special	-
53004	Vehicles	Non-Revenue Vehicles	Locomotive, Switch	-
54000	Vehicles	Equipment/Parts	-	-