



**METROPOLITAN
TRANSPORTATION
COMMISSION**

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Memorandum

TO: Partnership Technical Advisory Committee

DATE: December 7, 2015

FR: Theresa Romell

RE: PBA2040 Needs Assessment Update

MTC staff is currently in the process of developing the San Francisco Bay Area's Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), *Plan Bay Area 2040* (PBA2040). PBA2040 will span the 24 year period from fiscal years 2017 through 2040. A required element in the development of the RTP/SCS is the estimation of costs and available revenues for the preservation of the existing transportation system as well as the cost of maintaining existing transit services.

This memo will outline the methodology and progress to date in the development of the Transit Operating, Transit Capital, and Local Street and Road Needs Assessments.

The collection, review and compilation of needs assessment data as well as follow-up with stakeholders has been going on since April of this year. Below is a general time line of the major milestones still to be completed for the needs assessments. MTC staff will be working with relevant stakeholders to review draft information and incorporate feedback on an on-going basis prior to finalization of the needs assessments in the spring.

Timeline for Needs Assessment

Date (Tentative)	Activity
December - January	Distribute preliminary results of Needs Assessments to Transit Finance and Local Streets & Roads working groups
January – February	Partnership Board presentation of preliminary results
February – April 2016	Present draft needs assessments to PTAC, RAWG, MTC Planning Committee
Spring 2016	Needs assessments complete

Transit Operating

In the spring of 2015 MTC distributed a Transit Operating Needs Assessment Survey to each of the Bay Area's 25 transit operators. The Transit Operating Needs Assessment Survey gathered information from transit operators on current and planned service levels; existing and projected operating costs; and existing and projected local operating revenues over the Plan period. Staff received survey data for each of the 25 surveys distributed to transit operators.

Methodology

The cost to operate and maintain existing service levels was projected by the transit operators. MTC requested a cost breakdown of expenses by mode (bus, paratransit, rail, etc.) and system-wide non-operating expenses including debt service by year-of-expenditure. Transit operators also provided planned service changes associated with committed capital projects and/or fully funded future increases in service hours over the Plan period.¹

MTC staff conducted a detailed analysis of the survey results and incorporated fund sources which are projected directly by MTC for the Plan including State Transit Assistance (STA), AB 1107 sales tax, Transportation Development Act sales tax funds (TDA), bridge tolls, and Federal Transit Administration Funds. Staff also assumed sales tax growth rates for county sales tax measures, transit sales taxes, and the TDA are consistent with the sales tax growth rates provided by the sales tax authorities. Where necessary sales tax growth rates provided by operators were adjusted. This is consistent with the Plan's financial assumptions and the Plan's Draft Revenue Forecast which was presented at the joint MTC Planning/ABAG Administrative Committee in October 2015.

Current Status

Based on preliminary calculations, the PBA2040 Transit Operating Needs Assessment data indicates a significant increase in service levels of approximately 8% over the 2013 RTP (Plan Bay Area) level, and an even more significant increase of over 30% in projected costs.

Staff will be working with specific transit operators individually on follow-up questions MTC staff would like to have addressed. MTC staff expects to work with transit operators over the next few weeks to address the identified issues and further refine the Transit Operating Needs Assessment.

Transit Capital

Concurrent with the Transit Operating Needs Assessment Survey, MTC released a call for information for the Regional Transit Capital Inventory (RTCI). Since then, MTC staff and MTC's consultant, CH2M Hill, have been reviewing the RTCI data and working with operators to address any data issues identified through the data screening process.

¹ Planned changes in service not associated with a committed project are not included in the Transit Operating Needs Assessment as these service changes should have been submitted into the Plan's Call for Projects which closed on September 30, 2015. These uncommitted service changes will be evaluated along with capital projects as a part of the Plan's investment tradeoff discussion.

Methodology

The cost to maintain the Bay Area's existing transit infrastructure in a state of good repair is projected by running operator submitted information on existing transit assets through an analysis tool designed to estimate the level of investment needed to attain a specified state of good repair.

The RTCI data collected from operators contains information on transit asset types (vehicles, track, stations, systems, etc.), quantities, age, useful lives and replacement costs, among other details. MTC staff screens the inventory data that is submitted for errors and anomalies through a rigorous, multi-layered process prior to importing it into the analysis tool. The results of the analysis model are then further screened and prepared for review by transit operators. The analysis modeling is often an iterative process, as data problems or incorrect parameters used in the set-up of the analysis model can lead to inaccurate results. MTC works closely with the transit operators to ensure accuracy of the final assessments.

Attachment A to this memo contains additional information on the data screening and analysis processes undertaken for the Transit Capital Needs Assessment.

Revenues available for transit capital maintenance needs will be consistent with estimates of Federal FTA funds generated by MTC staff, and with operator-provided information on local revenues specifically for transit capital maintenance (i.e., general fund, sales taxes, etc.)

Current Status

MTC staff has prepared the RTCI data for importing into FTA's TERM Lite model, which is the tool MTC has selected for regional assessments of transit state of repair. CH2M Hill is in the process of preparing the draft Transit Capital Needs Assessment using the TERM Lite model.

In the coming months, staff will be working with transit operators to incorporate any required changes to the inventory data and to refine the estimates of transit capital revenues available to meet the capital needs.

Local Streets and Roads

The needs assessment work for the region's local street and road system benefits from the biennial survey conducted as part of the Statewide Local Streets and Roads Needs Assessment. This survey, last conducted in 2014, provided information on Bay Area unit costs for pavement maintenance treatments, estimates of non-pavement asset inventories and replacement costs, and information on local jurisdiction revenues available for roadway capital maintenance. This survey data, for which information was provided by all 109 Bay Area jurisdictions, is used in conjunction with MTC's StreetSaver® Pavement Management system—an analysis tool that estimates the cost to maintain pavements at a specified condition level—to estimate the needs of the local street and road system.

Methodology

Pavement needs are estimated by using the street inventory, conditions, and projected lifecycle information contained in local jurisdictions' StreetSaver® databases. Pavement maintenance unit costs, a key input into the StreetSaver® model, were estimated by county, using information submitted by local jurisdictions to the 2014 California Local Street and Road Needs Assessment survey. The StreetSaver® model then estimates the long-term maintenance needs of each

jurisdiction's street network, assuming the most cost-effective maintenance strategies are applied.

Non-Pavement capital maintenance needs consist of the cost to maintain other local street and road assets that are required for a functioning street and road system. These include assets such as storm drains, sidewalks, curb and gutter, street lights, signs, and signals. To estimate the Non-Pavement needs on the local road system, MTC used a prediction model developed by Nichols Consulting Engineers (NCE) that uses information provided by local jurisdictions on non-pavement asset inventory and useful life to estimate long term costs to maintain non-pavement assets. Replacement costs are predicted based on the inventory of two non-pavement assets - curb and gutter and streetlights. The total non-pavement asset replacement cost is then divided by the average useful life for each of the major non-pavement asset groups in order to estimate an annual preservation cost. The prediction model was updated with asset inventory and replacement cost information provided by local jurisdictions in responses to the 2014 California Local Street and Road Needs Assessment survey.

Information derived from the 2014 California Local Street and Roads Needs Assessment survey was used to determine revenues for Bay Area LS&R maintenance derived from local and county sources, as well as to determine the categorical split between capital maintenance and operations and new construction, by which jurisdictions expend revenues available for local streets and roads.

Revenue available for local street and road capital maintenance consists of MTC projected revenue from fuel taxes, and estimated long-term projections of local and county generated revenue sources. Information derived from the 2014 California Local Street and Roads Needs Assessment survey was used to estimate the amount of capital maintenance revenues derived from local and county sources, as well as to determine the categorical split between capital maintenance and operations and new construction, by which jurisdictions expend revenues available for local streets and roads.

Current Status

Preliminary estimates of local street and road costs and available revenues were shared with the Local Streets and Road Working group in September. On an annualized basis, preliminary calculations indicate an increase in revenue available for local street and road maintenance of approximately 2% over the 2013 Plan Bay Area. In addition, unit costs for pavement maintenance treatments show a 15% decrease region-wide compared to the 2013 Plan. The lower costs are likely a reflection of the decrease in material and contracting costs due to the economic downturn several years ago, as well as greater implementation of cost-saving recycling and other sustainable maintenance strategies.

Costs associated with meeting a State of Good Repair, may be adjusted to reflect the performance targets set forth in Plan Bay Area 2040. Staff will be working with local jurisdictions on an on-going basis until finalization of the needs assessment is complete.

State Highway and Bridges

MTC staff also plan to prepare an estimate of capital maintenance needs of Bay Area state and locally-owned bridges, and the Bay Area portion of the state highway system. These assessments will be prepared in consultation with information provided by the 2014 Statewide Local Needs Assessment, Caltrans and Bay Area Toll Authority staff.

If you have questions or would like to provide feedback on the needs assessment, please contact the following staff:

Transit Operating: William Bacon – wbacon@mtc.ca.gov

Transit Capital: Melanie Choy – mchoy@mtc.ca.gov

Local Streets and Roads, Highways, and Bridges: Theresa Romell – tromell@mtc.ca.gov

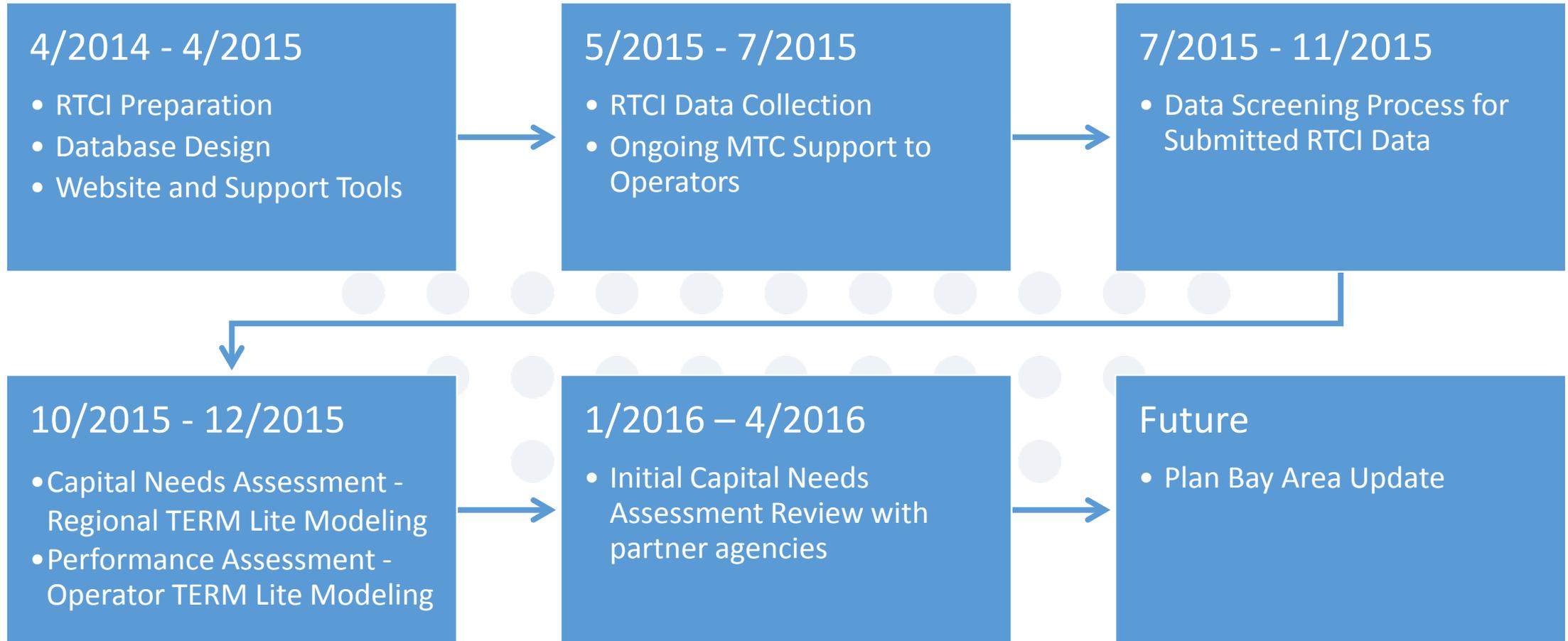
Plan Bay Area 2040 Transit Capital Needs Assessment

Melanie Choy (mchoy@mtc.ca.gov)

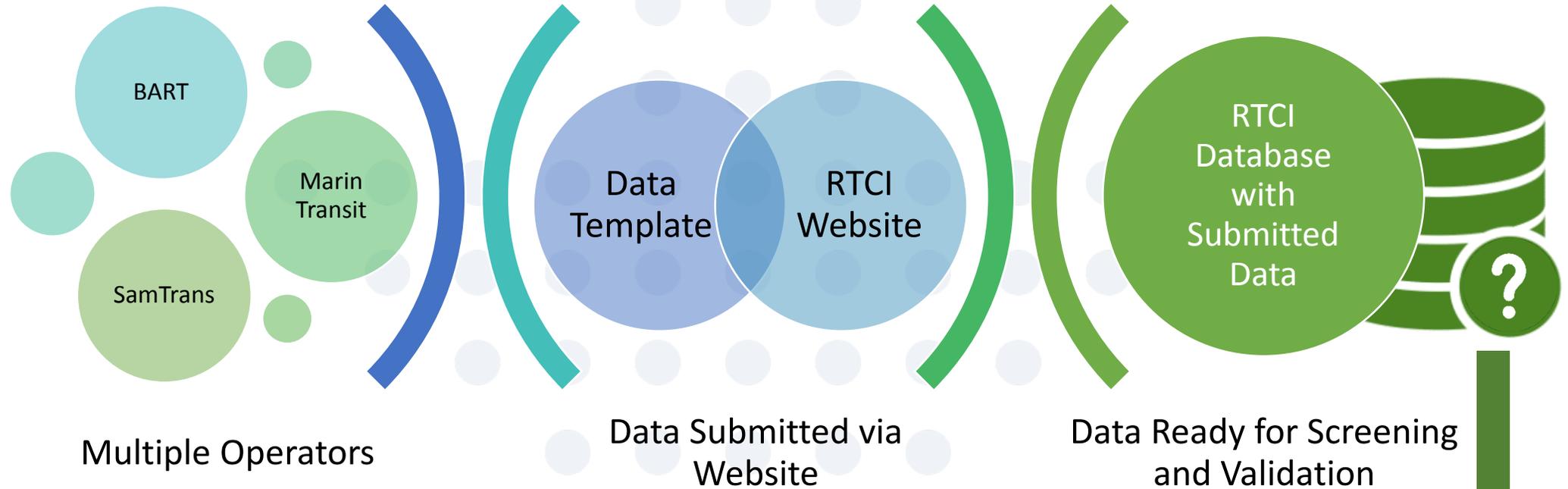
Nicholas Richter (nrichter@mtc.ca.gov)

2015-12-02

Timeline



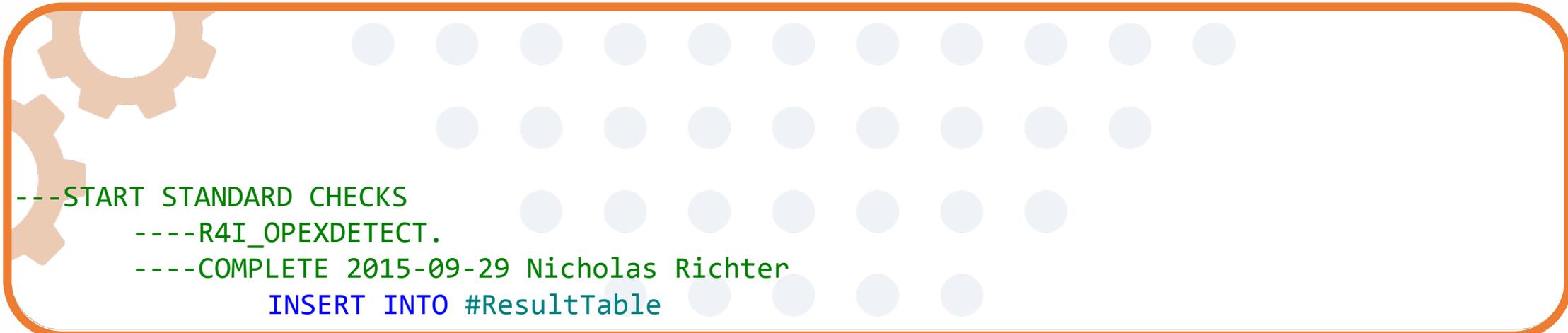
RTCI Update Process



Data Screening 1 – Automatic Checks

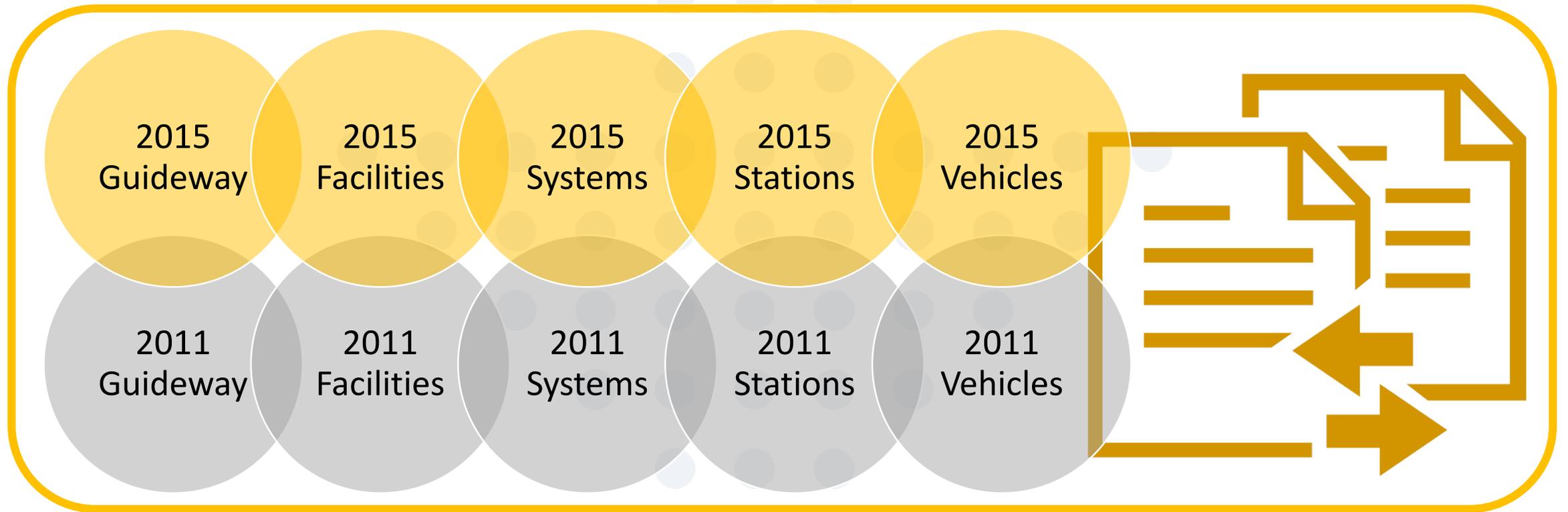
Screening for *possible issues* at the individual record level:

- Arithmetic
- Logical Consistency
- Unusual Value Combinations



```
---START STANDARD CHECKS
----R4I_OPEXDETECT.
----COMPLETE 2015-09-29 Nicholas Richter
      INSERT INTO #ResultTable
```

Data Screening 2 – 2015 vs. 2011 Comparison



Data Screening 3 – Cross-Operator Assumption Analysis*

Screening by asset type and operator for :

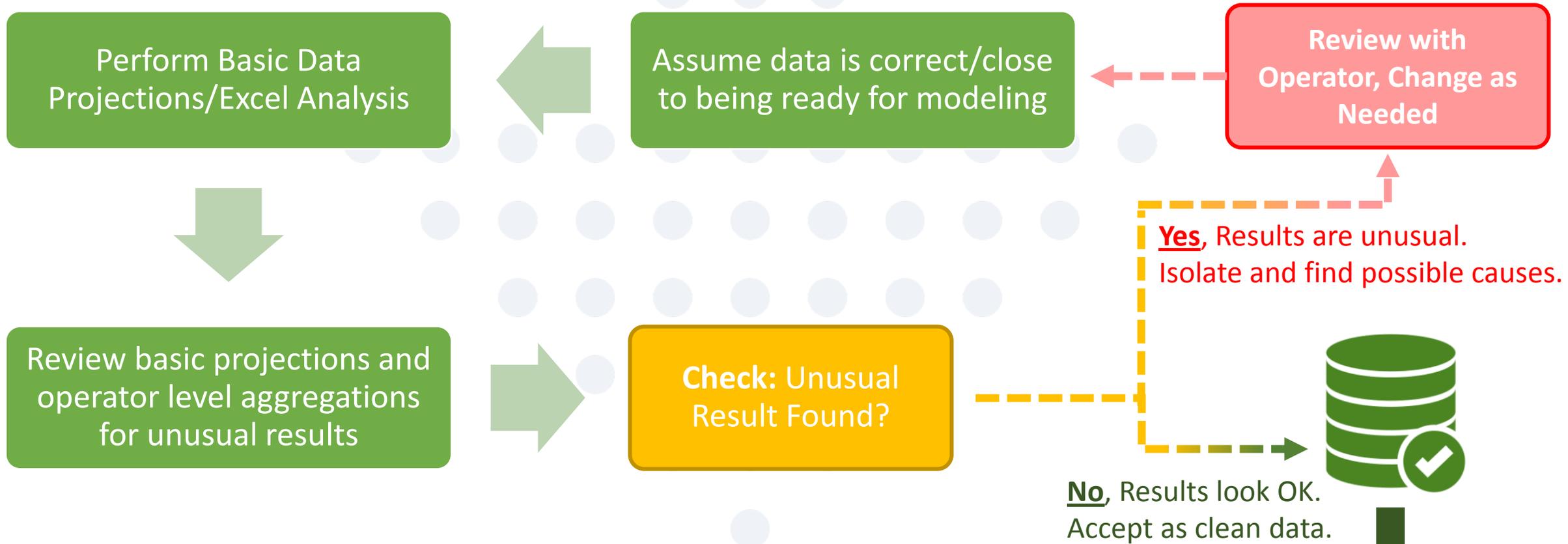
- Weighted average unit cost
- Weighted reported useful life
- Watch for Outliers



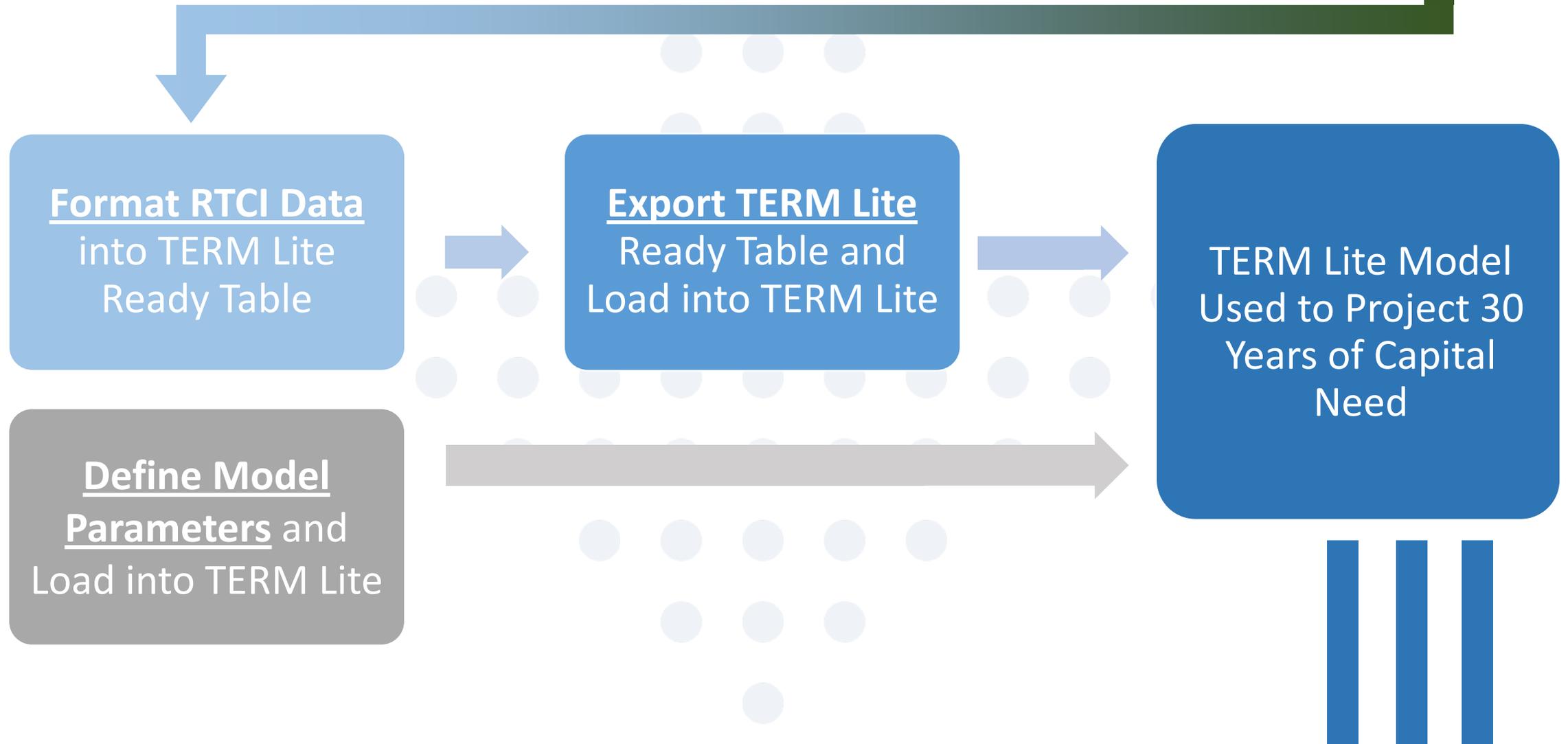
35201	35201	51903	53001	52523	23402	33500	51905	53002	35201
Non-Revenue Vehicle: Truck (inc. Heavy, Light, & Vans)	On-Vehicle Revenue Collection - Fareboxes	Bus (40 ft)	Non-Revenue Vehicle: Car	Medium-Duty Van	Bus Washer	Radio	Bus (30 ft)	Non-Revenue Vehicle: Truck (inc. Heavy, Light, & Vans)	On-Vehicle Revenue Collection - Fareboxes
Each	Each	Each	Each	Each	Each	Each	Each	Each	Each
\$ 34,932.50						\$ 7,856.37		\$ 34,932.50	
	\$ 1,119.61			\$ 50,353.98		\$ 29,005.21			\$ 1,119.61
\$ 71,039.59	\$ 36,006,890.17		\$ 30,535.48	\$ 6,541.00	\$ 404,424.37	\$ 106,529,260.85	\$ 948,500.00	\$ 71,039.59	\$ 36,006,890.17
\$ 27,063.01	\$ 18,280.21	\$ 686,565.44	\$ 35,255.04	\$ 88,817.73	\$ 253,030.67		\$ 542,449.69	\$ 27,063.01	\$ 18,280.21
	\$ 10,130.73	\$ 741,662.70	\$ 26,849.61	\$ 87,703.86	\$ 350,000.00				\$ 10,130.73
\$ 23,460.64	\$ 16,654.42	\$ 574,811.51	\$ 20,812.75		\$ 1,051,535.32			\$ 23,460.64	\$ 16,654.42
\$ 30,799.40	\$ 32,043.44	\$ 562,473.14	\$ 28,423.60		\$ 572,204.31	\$ 13,500,000.00	\$ 411,805.32	\$ 30,799.40	\$ 32,043.44

*Note: Artificial data shown on slide

Data Screening 4 – Operator-by-Operator Implication Testing

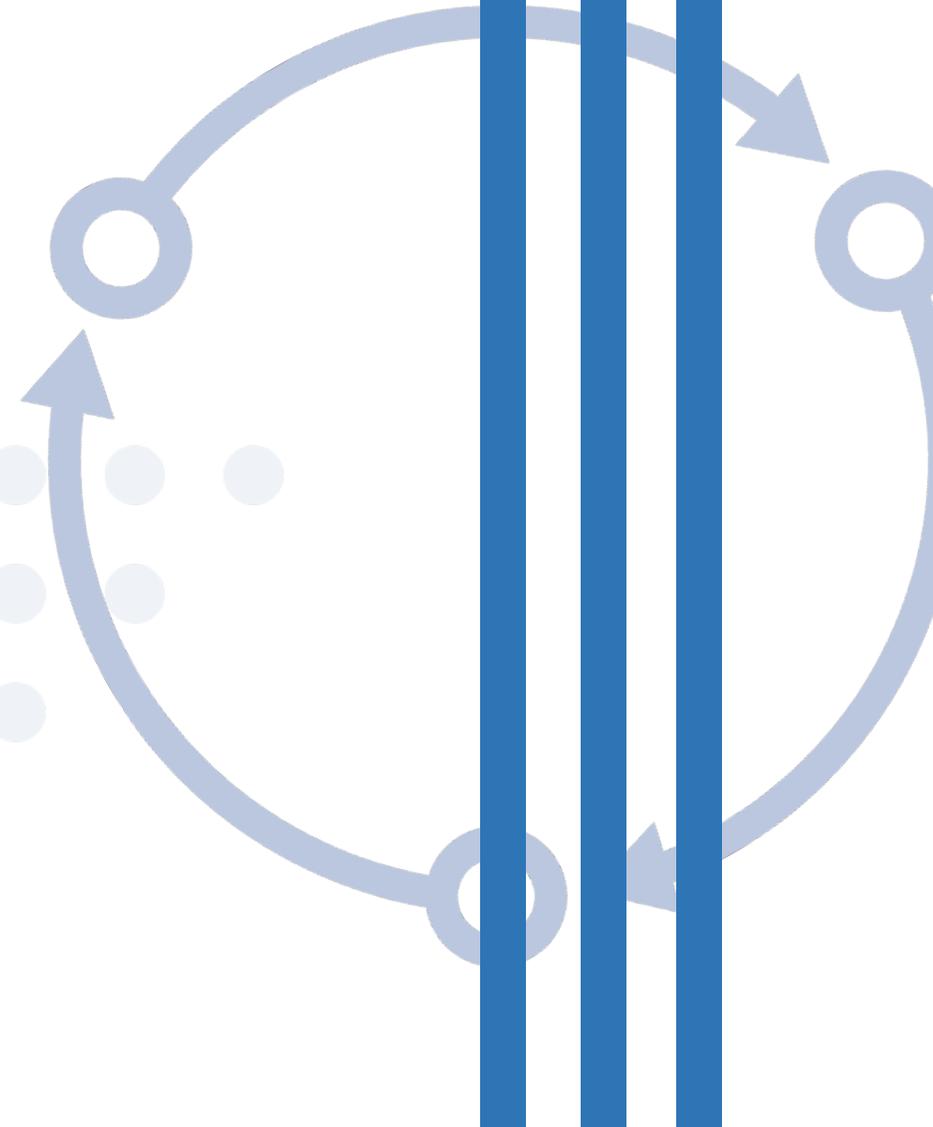


TERM Lite Model Runs

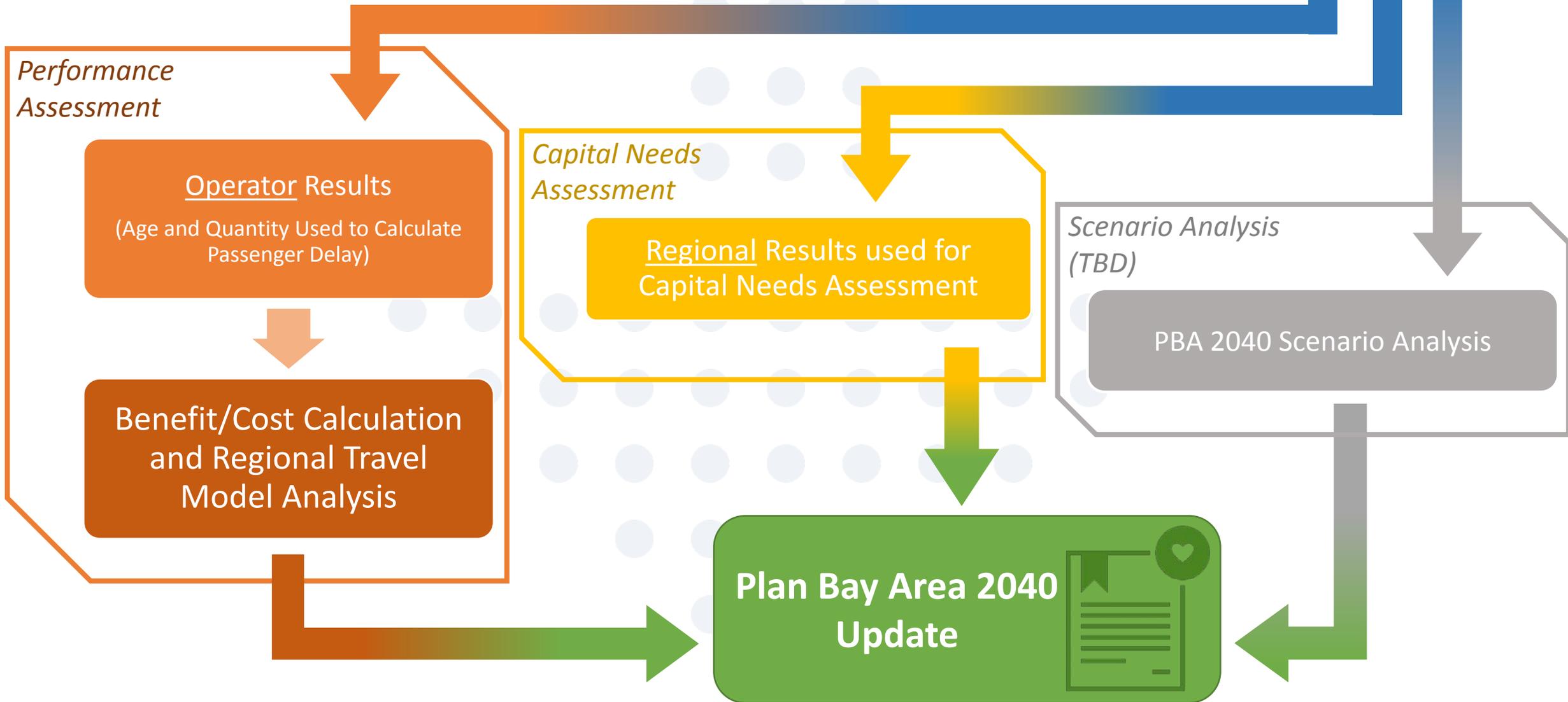


Possible Needs Assessments

1. **Maintain Current Condition**
Maintain overall PAOUL by maintaining backlog in model
2. **Financially Unconstrained**
Eliminate backlog in first 10 Years then
Maintain in State of Good Repair
3. **Financially Constrained**
Existing Funding Only



Model Results Uses





Thank You!