Hillsborough TPO
Transportation
Planning Organization

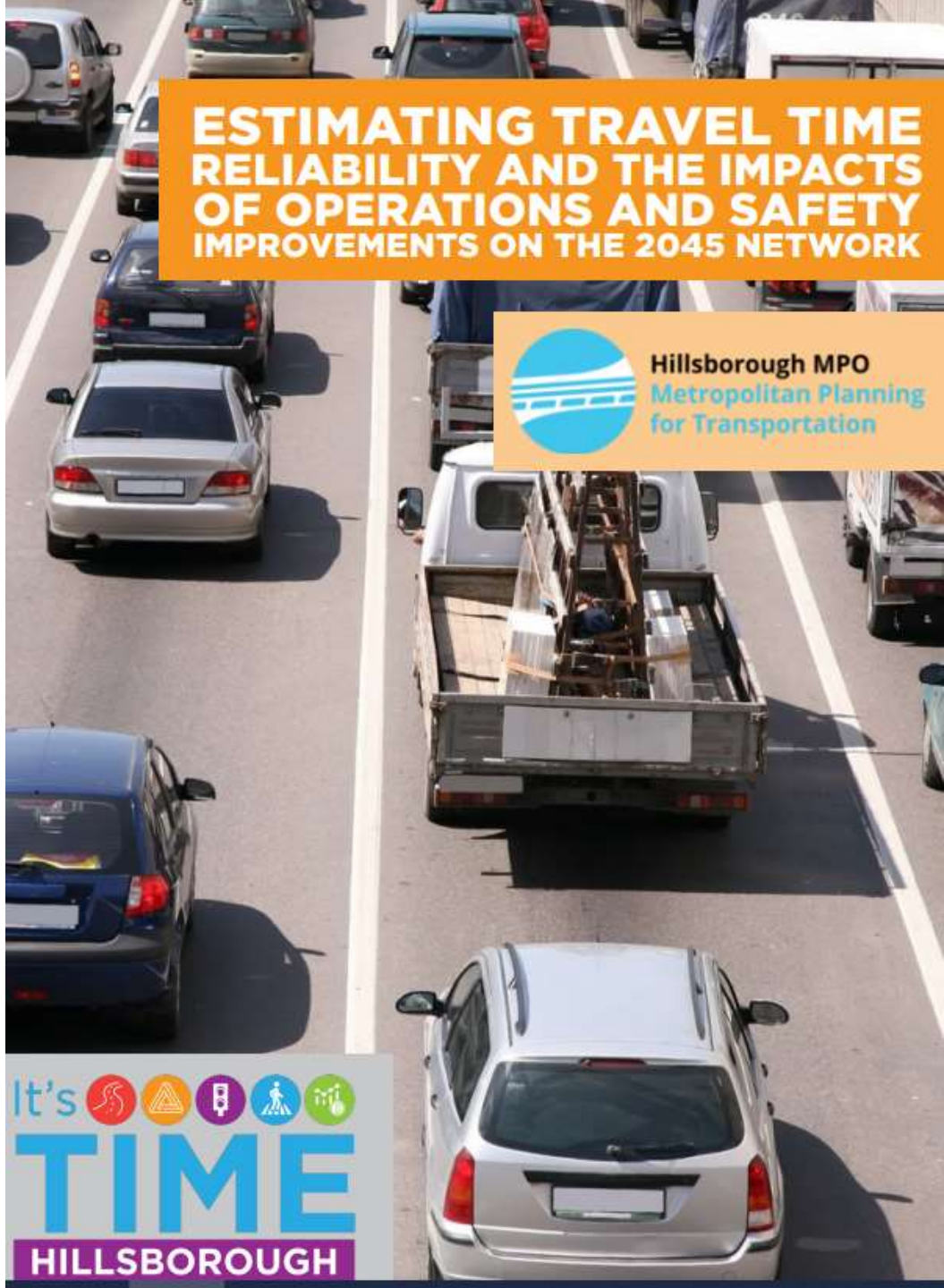
2050 Plan
Needs Assessment for Congestion Management and Crash Mitigation (CMCM)

Hillsborough Transportation Planning Organization

Vishaka Shiva Raman, TPO

Purpose of Needs Assessment

- Identifying future safety and reliability deficiencies in the transportation system
  - Inform investment decisions to address future needs
- Forecasting benefits of safety & reliability enhancements to provide cost estimates for desired performance



Performance Measures

System Performance Measures

- Reliability Index (80th percentile travel time/free flow travel time)
- Planning Time Index (95th percentile travel time/free flow travel time
- Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT)

Freight Movement on the Interstate System (PM3)

- Freight Reliability measured as Truck Travel Time Reliability (TTTR) Index

Congestion Management and Air Quality (CMAQ) Program: Traffic Congestion (PM3)

- Peak Hour Excessive Delay (PHED)

Safety Performance Measures

- Number of fatal, serious injuries and property damage crashes
- Bicycle and Pedestrian crashes

Background

- Project C11 tool developed by Federal Highway Administration Second Strategic Highway Research Program (SHRP2) for transportation investment planning
- Sketch planning spreadsheet tool for estimating economic, safety, travel time reliability impacts and costs for individual projects

Data selection

- Tampa Bay Regional Planning Model (TBRPM) 2045 Loaded Network output
  - Algorithms developed to forecast crashes, time of delay and travel time reliability
  - Corridors selected from the model, TPO's high injury network, and other priority corridors defined by local government partners

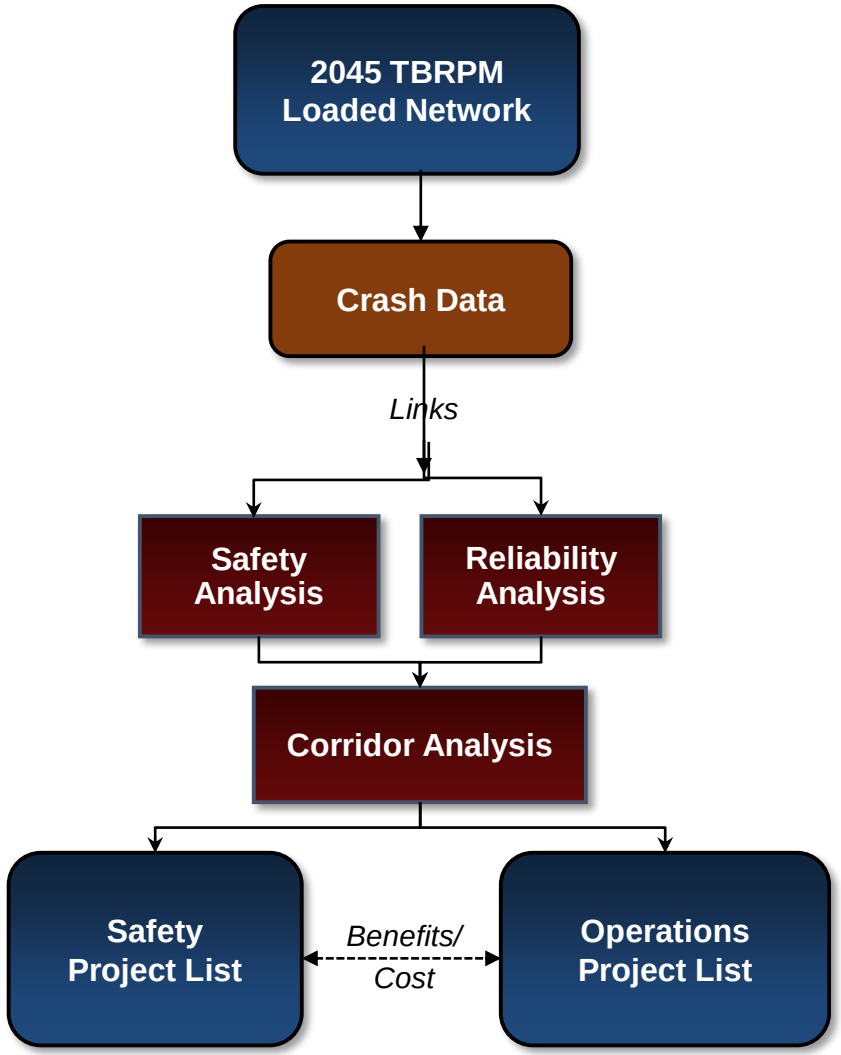
Methodology

- Post-processor reveals poorly performing links
- Links translated into corridors
- Enhancements applied to corridors based on facility type
  - Urban Freeways
  - Divided Arterials
  - Undivided Arterials
  - Other roadways (priority local roads and collectors)
- Scale of enhancements dependent upon revenue forecasts

Methodology

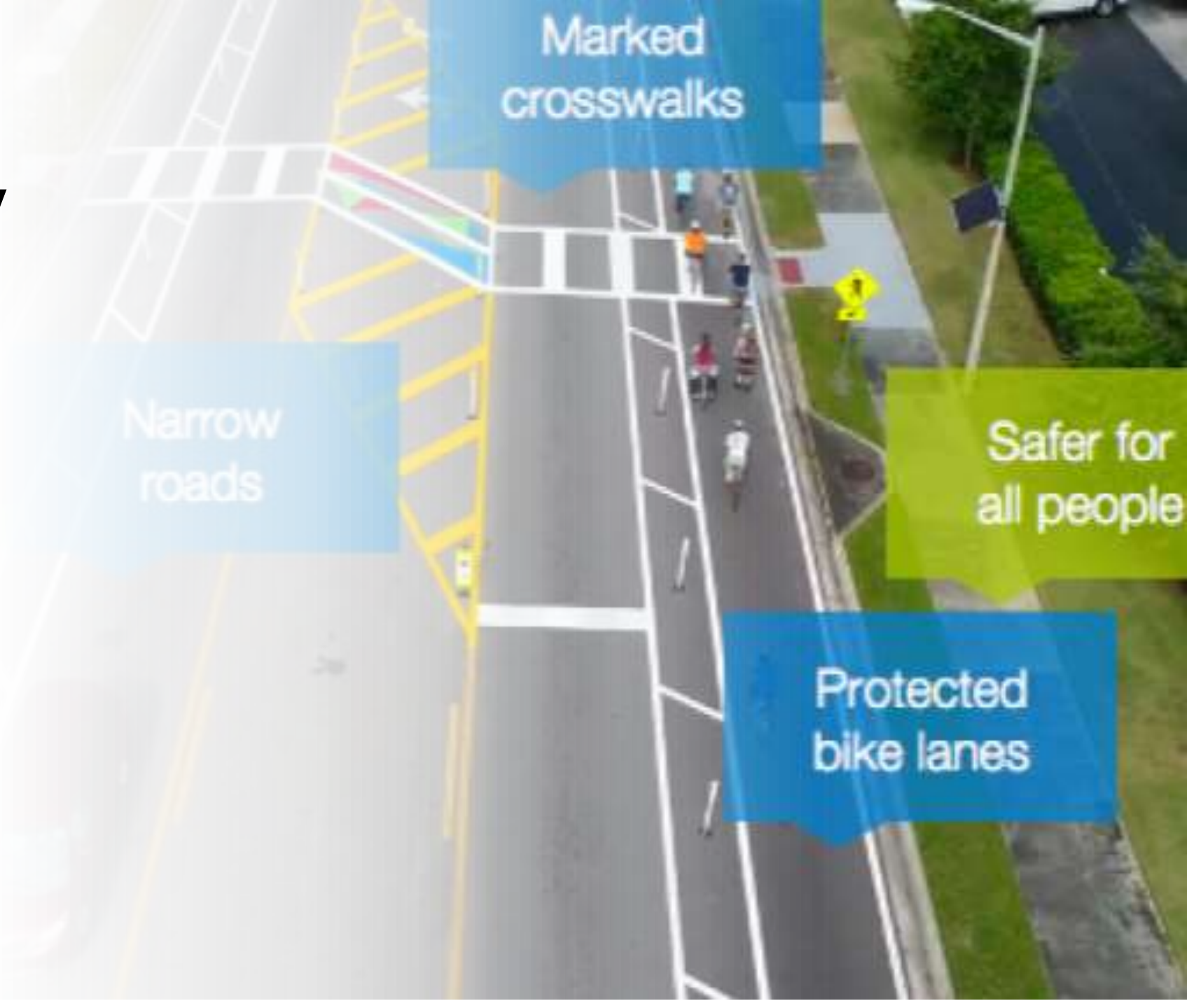
- Calculation of percentage improvement in safety and travel time reliability for each investment scenario
- Project selection based on highest benefit cost ratio for each improvement type and those that can be bundled
- Three types of improvements suggested
  - Low-cost improvements our partners have been implementing
  - Optimal improvements based on highest cost-benefit ratio
  - Middle value improvements

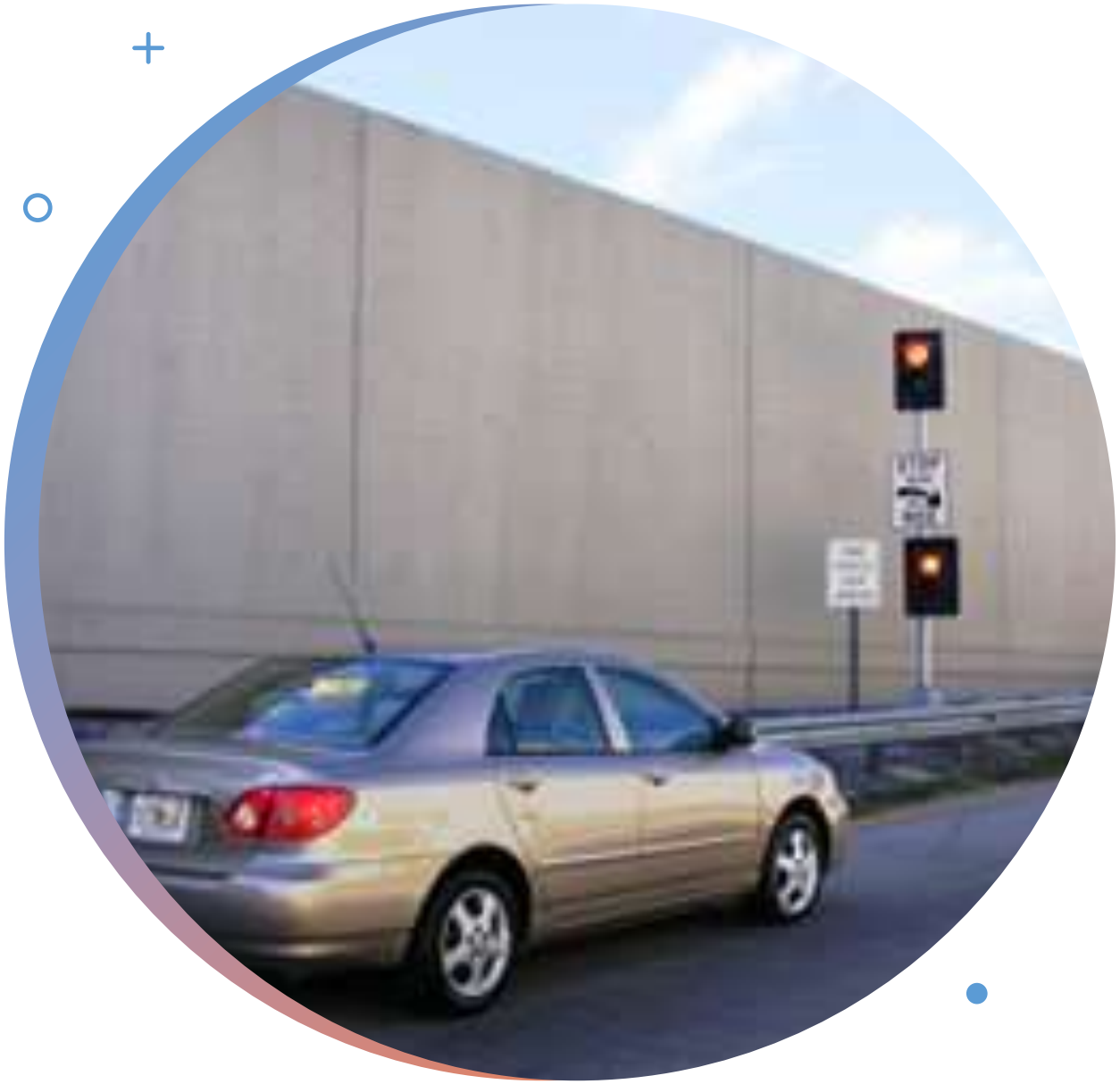
Tool Structure



Potential Safety Improvements

- Road Diet
- Complete Streets
- Turn Lanes
- Intersection Channelization
- Bike Lanes
- Lighting
- Pedestrian Crosswalks and Beacons
- Traffic Calming





Potential Operational Improvements

- Ramp Metering
- Part time shoulder use
- Variable speed limits
- CCTV
- Central Signal Control
- Loop Detection
- Signal Retiming
- Incident Management

Next Steps

- Summer 2023
  - 2050 Plan CMCM Needs Assessment Tech Memo
  - 2050 Plan Revenue Forecast
- Fall 2023
  - 2050 Plan Needs Assessment for Goods Movement and Truck Route Plan
  - 2050 Plan Needs Assessment for Good Repair & Resilience
  - 2050 Plan Needs Assessment for Real Choices
- 2024
  - 2050 Growth Scenarios
  - 2050 Cost Affordable Plan
  - 2050 Plan Adoption (Nov 2024)