Transportation Network Management with Multiple Network Types

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Network Wrangler
Static Network Management Tool

- **Python-based toolkit**
- **Code transportation projects**
  - Highway (add facilities, lanes etc.)
  - Transit (new routes, headways etc.)
- **Apply projects to TDM network**
  - Git version control
  - Conflict and error checking
- **Create static networks for TDM**
  - Simple to generate inputs for any number of scenarios
  - Network files in Cube format
Dynamic Traffic Assignment (DTA) Network Conversion

- Dynamic vs. Static Network Differences
  - Accurate roadway geometry and link length
  - Signal timing plans
  - Intersection movements
  - Centroid connectors to mid-block nodes
  - Traffic flow parameters
Fix using DTA software (Dynameq)

- Signal import errors
- Add turn pockets
- Complex intersection movements (not handled by heuristics)
Network Management – Status Quo

- Base TDM Network
  - Build Project(s)
  - Future Static Network
    - DTA Anyway
      - Signals & Stops
        - DTA Anyway
          - Future DTA Network
            - Manual Checking & Error Fixing
              - Clean DTA Network
                - Manual Coding of Build TDM Projects
Solution Approaches

- **DTA to static network conversion**
  - Dynameq -> EMME, TransModeler -> TransCAD, etc.
- **Multi-resolution modeling** (Aimsun, DynusT etc.)
- **Analysis, Modeling, and Simulation (AMS) Data Hub/ NeXTA**
  - Store common data across multiple resolutions
- Define a open-source multi-resolution network standard
  - Should enable extraction of both static and DTA networks