Chicago Metropolitan Agency for Planning

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eTIP Guidance: What's the right work type(s) for my road project and what is modeling all about?

Certain types of projects – those that may affect the region's air quality by adding or removing capacity on the roadway network – must be included in the region's travel demand model and be evaluated for their impacts on the region's ability to conform with air quality standards. This document provides guidance for properly describing these projects in eTIP and providing the information needed for modeling and conformity analyses.

Work Type

Modeling is required for any project that has an exempt status of "not exempt" or "exempt tested". This status is influenced by the scope of work (Work Type). Work type is a required field in the eTIP and at least one selection must be made when submitting a project. Below are examples of project work types that require modeling. For a comprehensive list of work types and their corresponding exempt status, see **here**.

- Highway/Road - Add Lanes
- Highway/Road - Corridor Improvement
- Highway/Road - Widen Lanes and Resurface
- Highway/Road - Reconst With Change in Use or Width of Lane
- Highway/Road - Extend Road
- Highway/Road - Remove Lanes
- Bridge/Structure - Reconst/Rehab Chng in Lane Use/Widths
- Interchange - Expand
- Interchange – New

When selecting work types, only select those which are most relevant to the work as outlined in the project scope. The table below provides examples of common work being done, how to describe that work in the project description field of eTIP, what the corresponding work type is, and what model information should be provided. Visuals for some common work types can be found at the end of this document.

What's really being done	Words to use in the project description	Work type(s) to be selected	Exempt status	Model information
Adding an additional through lane along a segment in both directions	"Add through lanes"	H-AL	Not exempt	o The number of *through* lanes *in each direction* before and after – these must be different, with the after greater than the before o Lane width before and after o Speed limit before and after o Whether or not signals are/will be interconnected before and after
Adding an additional through lane along a segment in one direction	"Add through lanes in the <dir> direction"	H-AL	Not exempt	Two location segments are required: one in the NB/EB direction and one in the SB/WB direction. The direction that is having a lane added should have: o The number of *through* lanes *in that direction* before and after – these must be different, with the after greater than the before o Lane width before and after o Speed limit before and after o Whether or not signals are/will be interconnected before and after. The direction that is not being widened does not need model info. (unless something else, such as signal interconnects, is changing in that direction, too.)
Adding a center two-way left turn lane	"Add center two-way left turn lane"	H-CLTL	Exempt tested	The number of *through* lanes *in each direction* before and after – these should be the same (the CLTL does not count as a through lane) o Lane width before and after o Speed limit before and after o Whether or not signals are/will be interconnected before and after

Changing the width of a lane (for example from 11′ to 12′) when resurfacing (typically accomplished by re-striping the pavement)	"Resurface and re-stripe with wider lanes"	H-WRS	Exempt tested	○ The number of *through* lanes *in each direction* before and after – these should be the same ○ Lane width before and after – these should be different, with the after larger than the before ○ Speed limit before and after ○ Whether or not signals are/will be interconnected before and after If there is more than 1 lane in each direction, and the width varies, use the *narrowest* lane width in the model information section.
Constructing a wider (more pavement, same number of lanes) roadway, with wider lanes (typically accomplished by reducing median width or adding additional outer pavement)	"Reconstruct and widen lanes"	H-RCNST	Exempt tested	○ The number of *through* lanes *in each direction* before and after the project – these should be the same ○ Lane width before and after – these should be different, with the after larger than the before ○ Speed limit before and after ○ Whether or not signals are/will be interconnected before and after. If there is more than 1 lane in each direction, and the width varies, use the *narrowest* lane width in the model information
Reconstructing the roadway with the same number of lanes, all same widths (i.e. ripping out the road and putting it back within the same footprint)	"Reconstruct"	H-RCINKND	Exempt	N/A (unless signal interconnects are also changing)
Resurfacing	"Resurface" or "LAFO"	H-RS	Exempt	N/A (unless signal interconnects are also changing)

Removing a lane (aka "Road Diet")	"Remove lanes", "Reduce lanes", or "Road Diet"	H-RL	Not exempt	○ The number of *through* lanes *in each direction* before and after – these must be different, with after smaller than the before ○ Lane width before and after ○ Speed limit before and after ○ Whether or not signals are/will be interconnected before and after
Adding a through lane at an intersection, by re-striping existing lanes	"Re-stripe intersection to provide additional <dir> through lane <and describe any changes to turn lanes>	H-INTIMP	Exempt	N/A (Unless the through lane extends beyond the immediate intersection area to the end of a segment. Staff will review attached plans/drawings to determine the extent of the addition and whether or not modeling is required.)
Adding a through lane at an intersection by removing/replacing/adding pavement	"Construct new <dir> through lane <and describe any changes to turn lanes>	H-INTRC	Exempt	N/A (Unless the through lane extends beyond the immediate intersection area to the end of a segment. Staff will review attached plans/drawings to determine the extent of the addition and whether or not modeling is required.)

If the work you're doing isn't listed above or you are unsure of which work type(s) to choose, please contact your planning liaison or CMAP staff. Contact information is listed at the end of this document.

Modeling

The travel demand model is a multi-model process that requires a number of data inputs to estimate travel patterns. "Demand" side information includes travel surveys to inform the models, as well as socioeconomic data on where people live and work. "Supply" side data includes the physical roadway and transit networks. **See** the complete model here, with data inputs identified by green ovals.

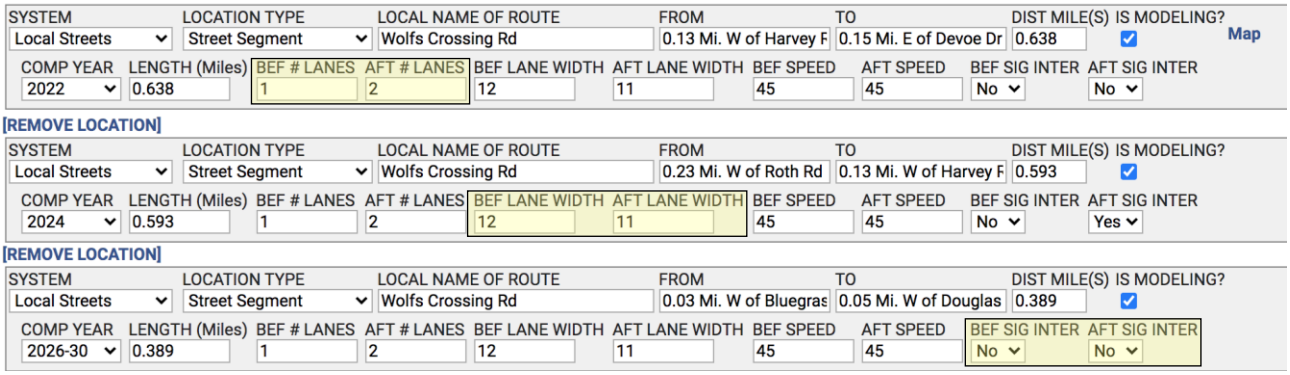
The Master Highway Network (MHN) is the official road network database used to develop travel demand model networks at CMAP. The MHN is a collection of links and nodes representing roadway segments and intersections throughout the region. It also includes links serving as placeholders for future planned facilities. The MHN relies solely on the eTIP for project information for planned and programmed projects in Northeastern Illinois. Therefore, it is crucial that information entered in the eTIP is accurate and thorough.

Both not-exempt and exempt-tested projects are included in the travel demand model. Project attributes are required in the eTIP under 'Project Information.' If road characteristics vary, each segment must be individually documented, as seen in Figure 1. These details, such as change in

number of lanes, speed and completion year help improve model accuracy. Segments should also be clearly identified on the map, indicated via the node functionality. Nodes placed on the map should align with the location and distance details provided in the Project Information section. Figure 2 is an example of the level of detail expected.

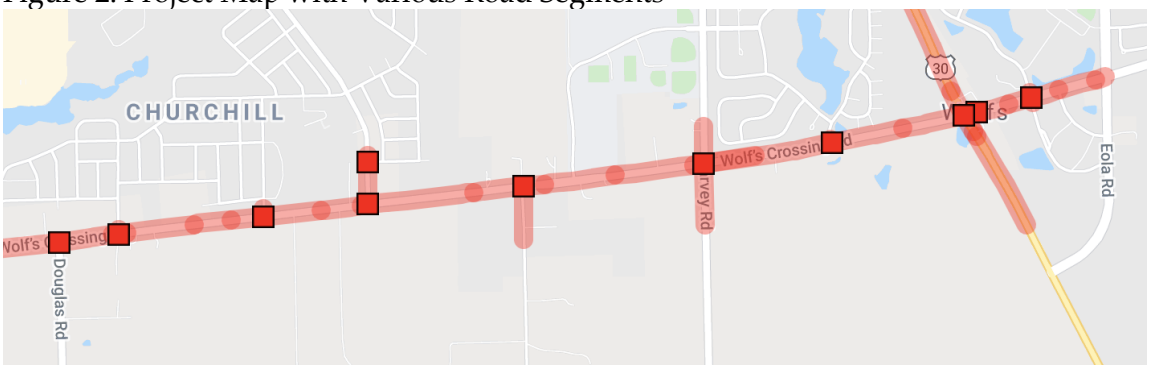
Unless otherwise noted in the eTIP, road segments are assumed to be bi-directional. If a project is not bi-directional, make a note under 'Other Project Location Information' so the modeling team knows to factor it in.

Figure 1. Detailed Project Information in the eTIP



The location portion of the Project Information section includes data required to locate projects within the region and to model projects subject to conformity analysis. For projects that involve multiple locations, such as distinct roadway segments, a series of intersections, or several bus routes or train lines, each distinct location should be entered as a separate line. For projects that involve modelling for conformity determinations, if the characteristics (such as number of lanes, or speed limit) change along the length of the project, those distinct segments should be entered as separate lines. For each segment that requires model information, check the "Is Modeling?" box to reveal the model information fields. For more information see the **eTIP User Guide**.

Figure 2. Project Map with Various Road Segments



The eTIP mapping application overlays IDOT's Illinois Roadway Information System (IRIS) point and line files on Google Maps™. Within the application, outlined squares represent the intersection of two roadways. Dots (with no outlines) represent segment endpoints in IRIS and

are typically located at a point where the characteristics of the road (lanes, lane widths, speed limits, pavement type, shoulders, etc.) change. Outlined dots (not shown above) represent rail crossings, terminals, stations, etc. Outlined triangles (not shown above) represent structure (bridge or culvert) locations.

To properly map a project in eTIP, select all segments within the project limits. Select individual intersections only if unique work is being done at that intersection. For example, if the project is reconstruction of the roadway and all intersections are being reconstructed "in-kind", the individual intersections should not be selected. However, if turn lanes are being added at an individual intersection within the segment, that intersection should also be selected. For intersection improvement projects, select only the intersection square. If substantial work beyond what would be typical at the intersection approaches is being done, then the affected approach segments should also be selected.

Air Quality Conformity Analysis

Outputs from the travel demand models influence the conformity evaluations of the region's TIP and Regional Transportation Plan.

CMAP staff evaluates the impact of proposed transportation activities on the region's air quality as part of the transportation conformity process required under the Clean Air Act (CAA). Not exempt work types are expected to affect air quality and must be included in the conformity analysis. Exempt tested work types do not require an air quality conformity analysis. Projects are not individually conformed, but rather all projects in the TIP with a not exempt work type or identified as a Regionally Significant Project (RSP) are analyzed as a group so that the cumulative impacts on mobile source emissions can be determined. CMAP makes conformity determinations for the TIP twice per year, typically in January and June.

For a project to be considered for inclusion in the conformity analysis it must have been included in the CMAP travel demand model, have funding for a phase beyond Alternatives Analysis (AA) or Engineering 1 (E1) in the most recently adopted or amended TIP (funding for a phase beyond AA or EI can be submitted as part of a conformity amendment), or be identified as a RSP in ON TO 2050, the region's comprehensive plan.

Work Type Visuals

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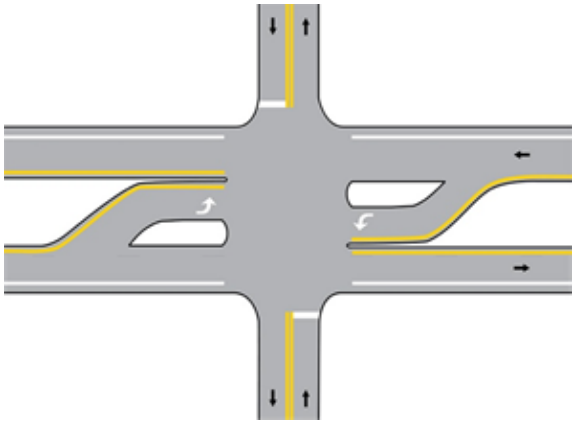
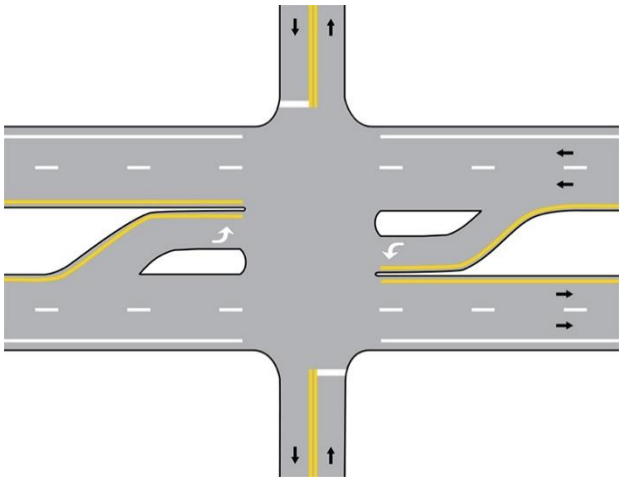
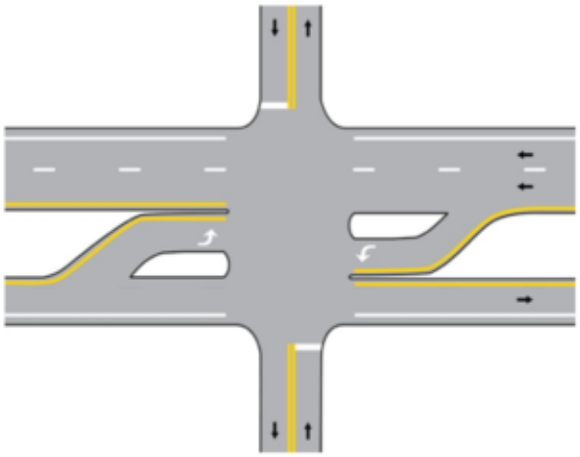
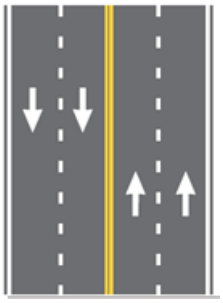
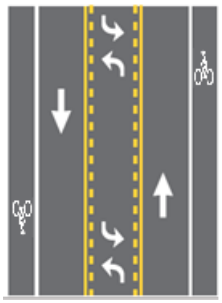
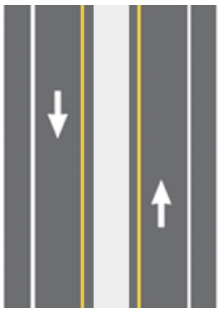
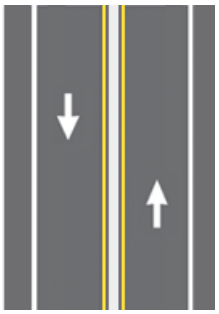
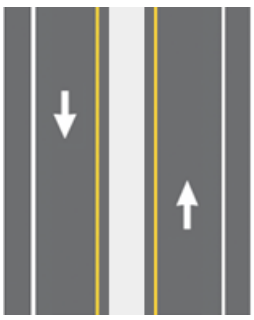
<tr><th>Before</th><th>After</th></tr>
<tr><td rowspan="2"> 
(BEF # LANES = 1)</td><td>Additional through lanes in both directions
(Work Type: H-AL)
 
(AFT # LANES = 2)</td></tr>
<tr><td>Additional through lane in one direction
(Work Type: H-AL)
 
(Street Name - WB, AFT # LANES = 2)
(Street Name – EB, AFT # LANES = 1)</td></tr>
</table>

<table>
<tr><th>Before</th><th>After</th></tr>
<tr><td rowspan="2"> 
(BEF # LANES = 2)</td><td>Road Diet & Center two-way left turn lane
(Work Types: H-CLTL, H-RL, E-BIKENEW)
 
(AFT # LANES = 1)</td></tr>
<tr><td rowspan="2"> 
(BEF LANE WIDTH = 10)</td><td>Lane widening by restriping/resurfacing; No width change to existing pavement
(Work Type: H-WRS)
 
(AFT LANE WIDTH = 12)</td></tr>
<tr><td>Lane widening by constructing a wider roadway with wider lanes
(Work Type: H-RCNST)
 
(AFT LANE WIDTH = 12)</td></tr>
</table>

Contact Information

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