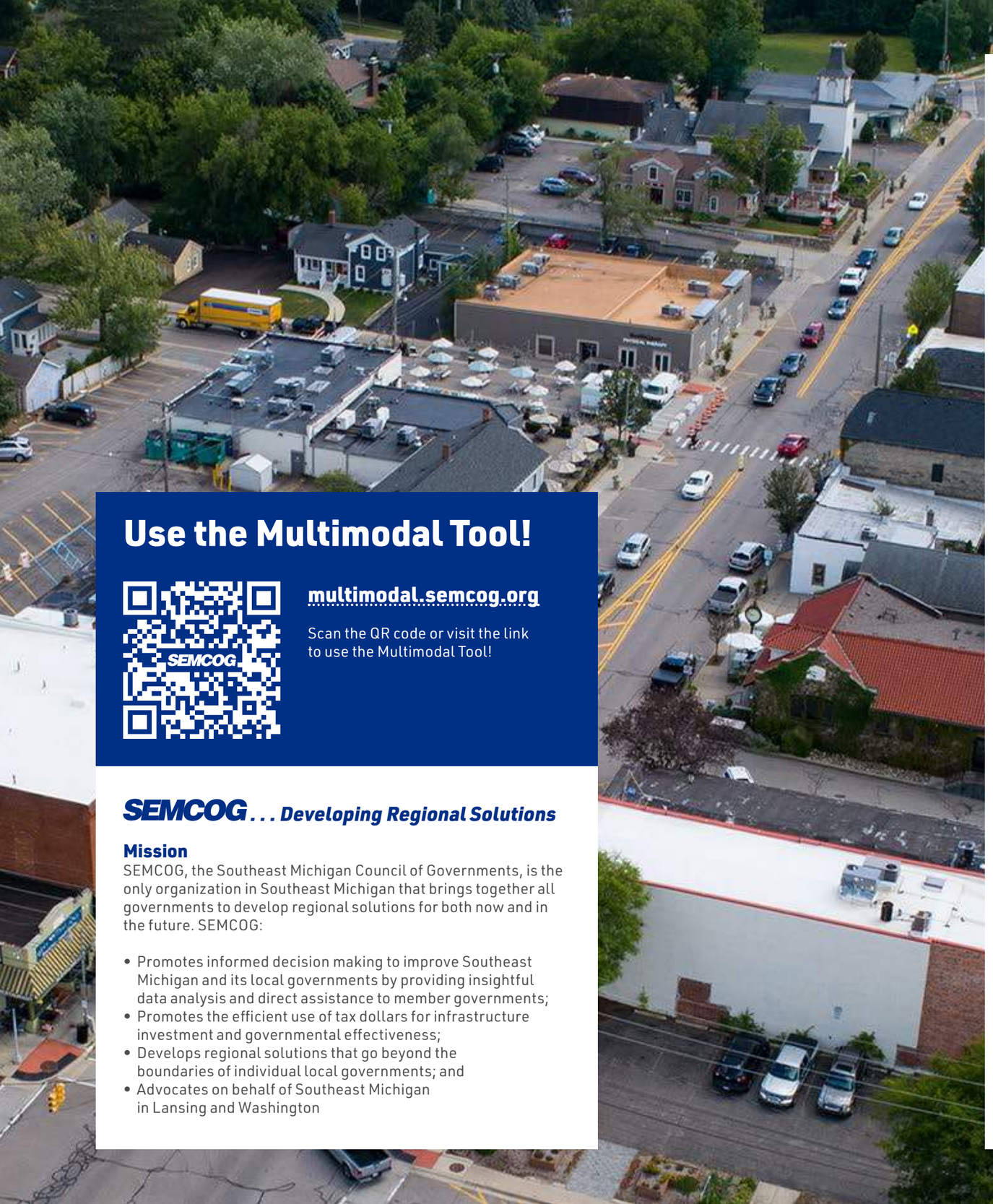
Multimodal Tool Case Studies

June 2025

SEMCOG | MDOT



Use the Multimodal Tool!

multimodal.semcog.org

Scan the QR code or visit the link to use the Multimodal Tool!

SEMCOG . . . Developing Regional Solutions

Mission

SEMCOG, the Southeast Michigan Council of Governments, is the only organization in Southeast Michigan that brings together all governments to develop regional solutions for both now and in the future. SEMCOG:

- Promotes informed decision making to improve Southeast Michigan and its local governments by providing insightful data analysis and direct assistance to member governments;
- Promotes the efficient use of tax dollars for infrastructure investment and governmental effectiveness;
- Develops regional solutions that go beyond the boundaries of individual local governments; and
- Advocates on behalf of Southeast Michigan in Lansing and Washington

Multimodal Tool Case Studies

What is the Multimodal Tool?

SEMCOG and MDOT have developed a web application that lets you plan, design, and evaluate multimodal street cross-sections for each of five travel modes: pedestrian, bike, transit, auto, and freight. The Tool has two modules:

Modal Prioritization
This webmap lets you view modal networks and tiers, identify a project corridor, review modal priorities, and determine land use contexts.

Right-of-Way Allocation
This user interface lets you design street cross-sections to best serve the prioritized modes in the given land use context and evaluate how well the designs serve users.

Who is the Multimodal Tool for?

This Tool is intended to help the following users:

- **County and local jurisdictions in the SEMCOG region**
- **Stakeholders & community organizations**
- **SEMCOG staff**
- **MDOT staff**

Funding

Preparation of this document is financed in part through grants from and in cooperation with the Michigan Department of Transportation with the assistance of the US Department of Transportation's Federal Highway Administration, and other federal and state agencies as well as local membership contributions.

SEMCOG

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18101 W. Nine Mile Rd
Southfield, MI 48075
248-483-5100

University Region
4701 W. Michigan Ave
Jackson, MI 49201
517-750-0401

www.michigan.gov/mdot

About these Case Studies

SEMCOG and MDOT partnered with local jurisdictions to test the Multimodal Tool in a variety of land use and transportation contexts across Southeast Michigan. These working sessions provided an opportunity to pilot the Multimodal Tool in real-world applications, collect stakeholder feedback, and adjust the Tool's functionality in response to user needs and suggestions.

These sessions gave partner jurisdictions the opportunity to use the Multimodal Tool to explore and evaluate complete streets enhancements in their communities. The following pages describe case studies completed in St. Clair Shores and Detroit. The process for each case study follows the steps described in the Using the Multimodal Tool section of the Multimodal Tool User Guide.

SEMCOG and MDOT will continue to pilot the Multimodal Tool with stakeholders in local communities and use the feedback from these sessions to make ongoing updates to the Tool.

9 Mile Road, St. Clair Shores

Gratiot Avenue, Detroit

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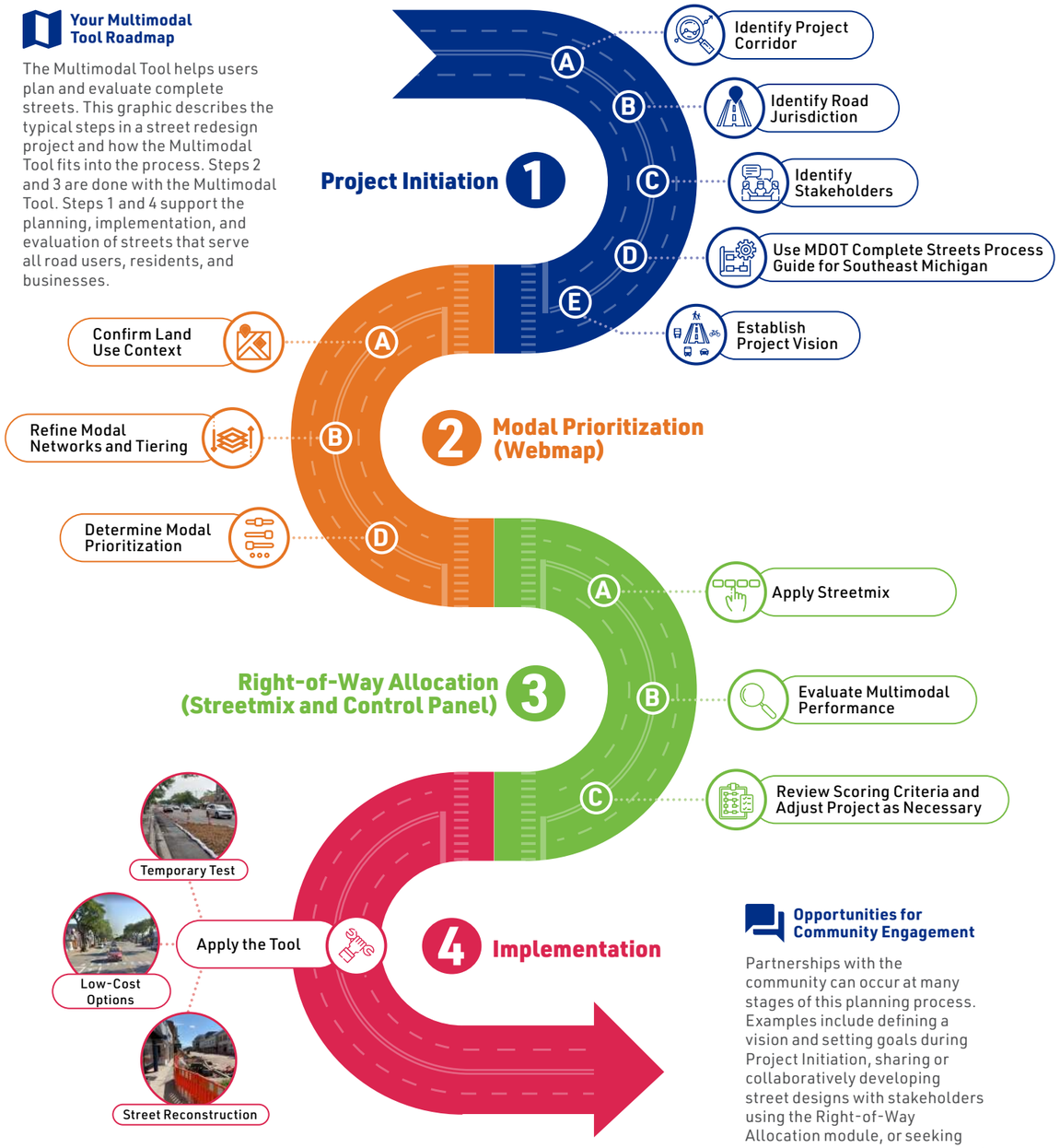
The Multimodal Tool at a Glance

Your Multimodal Tool Roadmap

The Multimodal Tool helps users plan and evaluate complete streets. This graphic describes the typical steps in a street redesign project and how the Multimodal Tool fits into the process. Steps 2 and 3 are done with the Multimodal Tool. Steps 1 and 4 support the planning, implementation, and evaluation of streets that serve all road users, residents, and businesses.



Opportunities for Community Engagement

Partnerships with the community can occur at many stages of this planning process. Examples include defining a vision and setting goals during Project Initiation, sharing or collaboratively developing street designs with stakeholders using the Right-of-Way Allocation module, or seeking community feedback on a project during Implementation.

1 Project Initiation

Identify Project Corridor
Project corridor may be identified as part of a network evaluation to find gaps, determine priorities, or address safety concerns and operational needs. May be based on community needs, existing plans, or other criteria. May include one or multiple segments.

Identify Road Jurisdiction
Identify if the road falls under local, county, MDOT, or private jurisdiction, using the SEMCOG Road Jurisdiction Map.

Identify Stakeholders
Depending on the project location, stakeholders may include city and local agency staff; county, SEMCOG, and MDOT staff; and downtown development or corridor improvement authorities, community-based organizations, and other large trip generators.

Use MDOT Complete Streets Process Guide for Southeast Michigan
The guide (see page 6) describes the process for evaluation of requests to modify or repurpose travel lanes along roads within the seven-county SEMCOG region.

Establish Project Vision
The vision may relate to enhancing safety, livability, equity, environment and air quality, economic development, and multimodal connectivity.

2 Modal Prioritization (Webmap)

Confirm Land Use Context
Confirm that you will use the land use context that has been assigned to the project corridor or override the default. Longer corridors may pass through multiple land use contexts.

Refine Modal Networks and Tiering
Identify which modes the road is intended to serve. Then, identify how important the road is for serving each travel mode: Tier 1 (most important), Tier 2 (moderate importance), Tier 3 (lower importance).

Determine Modal Prioritization
Determine which mode takes precedence when more than one mode is Tier 1.

3 Right-of-Way Allocation (Streetmix and Control Panel)

Apply Streetmix
Create conceptual cross-section designs for the project corridor using the Streetmix platform, which has been integrated into the Tool.

Evaluate Multimodal Performance
Use the Tool's Control Panel to input additional details of your project not captured in Streetmix and determine how well the proposed cross-sections serve different road users.

Review Scoring Criteria and Adjust Project as Necessary
Review each mode's score and see if objectives are met. Review weakest link elements and adjust inputs if needed.

4 Implementation

Apply the Tool
Temporary tests, permanent low-cost options that do not change the existing curbs, and permanent projects that reconstruct the entire street are three common strategies for implementing street reconfigurations developed using the Multimodal Tool.

9 Mile Road, St. Clair Shores

Project Description
This case study is a good example of a major arterial that travels through a business district where there are lots of needs.

- 9 Mile Road connects I-94 with Jefferson Avenue and Lake St. Clair
- This connection attracts many trucks hauling trailers to and from the lake, and lanes need to accommodate those users
- 9 Mile Road traverses a business district where pedestrians and their safety are a priority
- There are a lot of driveways, which causes Multimodal Tool scores to be lower. Reducing driveways could improve the scores
- SMART has bus stops along 9 Mile Road
- The segment selected is typical but conditions vary by block

1. Project Initiation

Identify Project Corridor
9 Mile Road from Cavalier Drive to Jefferson Avenue

Identify Road Jurisdiction
City of St. Clair Shores

9 Mile Road, St. Clair Shores

1. Project Initiation

Identify Stakeholders
Stakeholders involved in the application project included:
- City of St. Clair Shores City Manager
- DDA Planner
- Macomb County Department of Roads

Use MDOT Complete Streets Process Guide for Southeast Michigan
The MDOT Complete Streets Process Guide was used to determine whether the Multimodal Tool could be used as an alternative to the MDOT Road Diet Checklist. Since the segment of 9 Mile Road is not an MDOT trunkline and does not intersect with an MDOT trunkline, the Multimodal Tool can be used in lieu of the Road Diet Checklist.

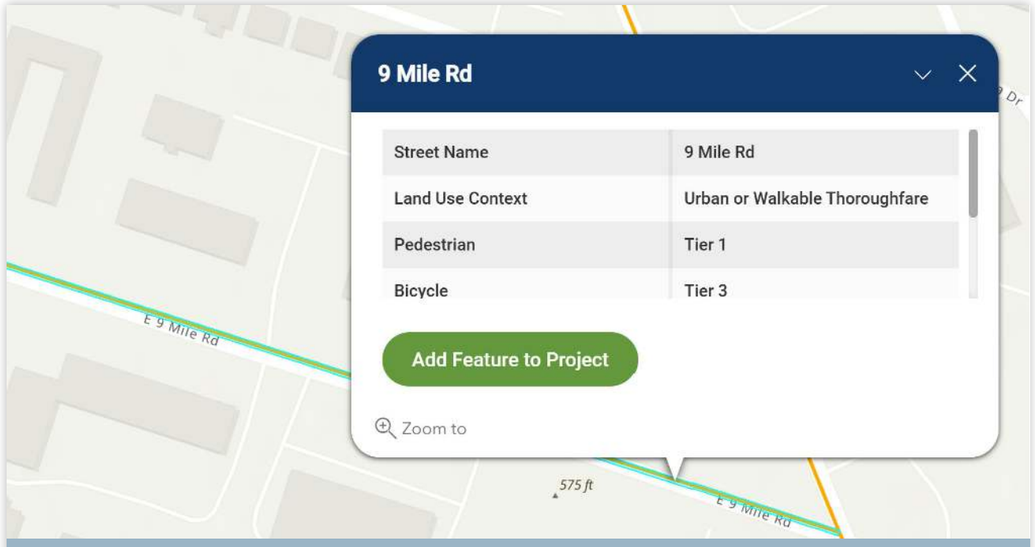
Establish Project Vision
The project envisions:

- Connecting Greater Mack Avenue with the Nautical Mile and Lakefront
- Improving walkability in the business district
- Widening sidewalks, especially on the north side of 9 Mile Road
- Accommodating large volumes of trucks with boat trailers and SMART buses

2. Modal Prioritization

Using the Tool
Open the Multimodal Tool and search "9 Mile Road."

The shown segment was chosen and added to the project using the segment selection toolbox. This was identified as a challenging block given the transit stop, few amenities, and multiple driveways that can limit options.



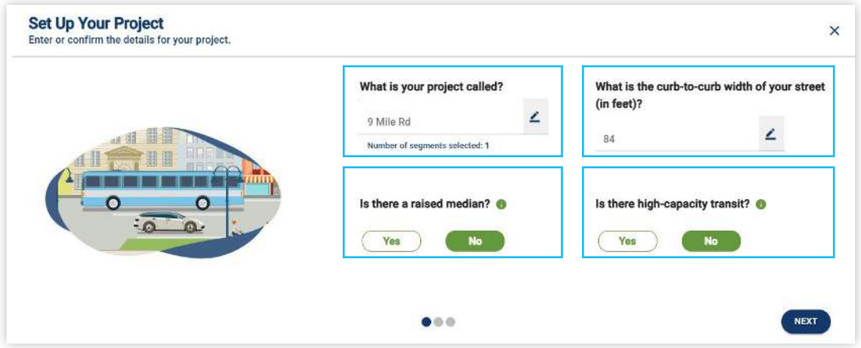
The project corridor is made of multiple individual segments. Since the Multimodal Tool tests one set of modal tiers and one land use context at a time, consider testing a representative segment of the entire corridor or testing multiple segments with different modal tiers and land use contexts.

9 Mile Road, St. Clair Shores

3. Right-of-Way Allocation

Set Up Your Project

Existing

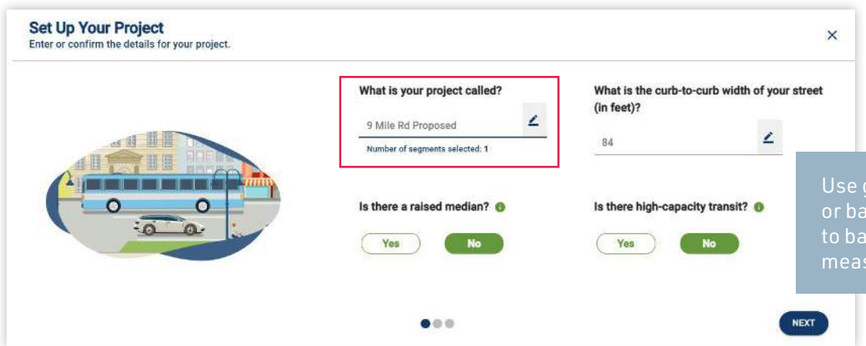


Describe your existing project:

- The name of the project is "9 Mile Road Existing"
- The right-of-way width is 84 feet
- There is not a raised median
- There is no high-capacity transit

Proposed

Enter existing conditions first, save the link to the existing conditions, and then go back and enter the proposed alternative.



Only the name of the proposed project changed.

Use given right-of-way, or back-of-sidewalk to back-of-sidewalk measurements.

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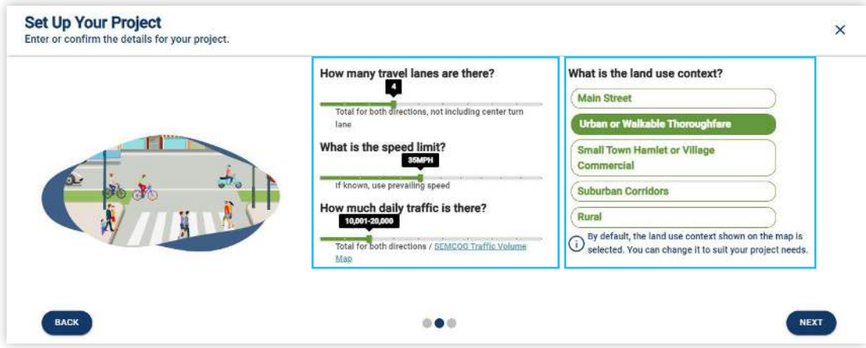
Set Up Your Project

Existing



Describe your existing project:

- There are 4 lanes
- The speed limit is 35 mph
- The daily traffic is 10-20 thousand according to the SEMCOG Traffic Volume Map
- The land use context is Urban Walkable Thoroughfare

Proposed

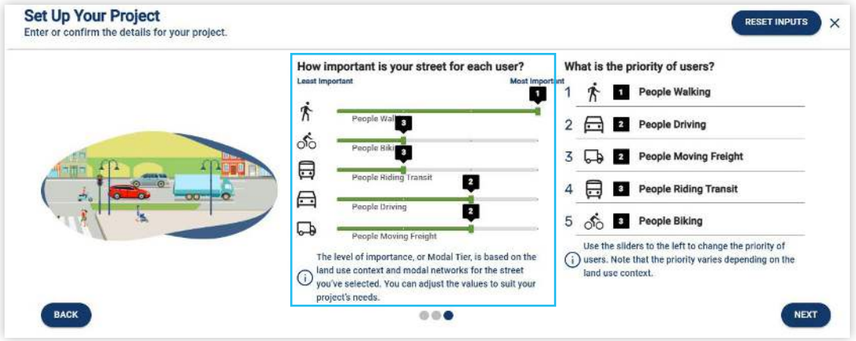
The number of lanes changed from 4 to 2 for the proposed project.

9 Mile Road, St. Clair Shores

3. Right-of-Way Allocation

Set Up Your Project

Existing



Rank how important your street is for each existing user, with 1 being the most important.

Proposed

The ranking of each proposed use remained the same.

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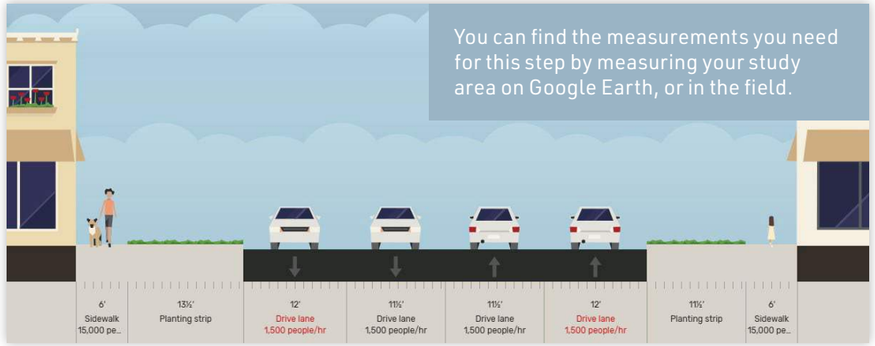
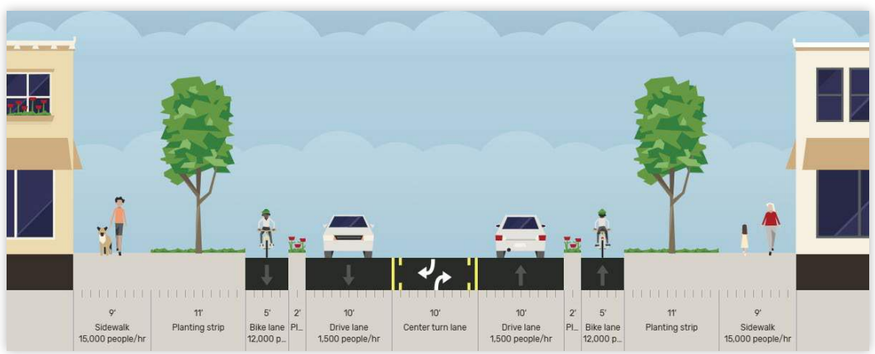
Build Your Project: Streetmix

Existing



Using Streetmix, model the existing geometry of your roadway.

Proposed



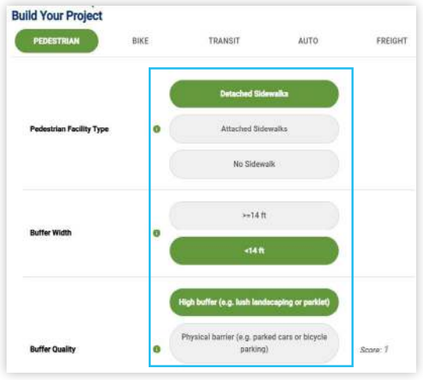
Using Streetmix, model the geometry you would like to see along the roadway.

9 Mile Road, St. Clair Shores

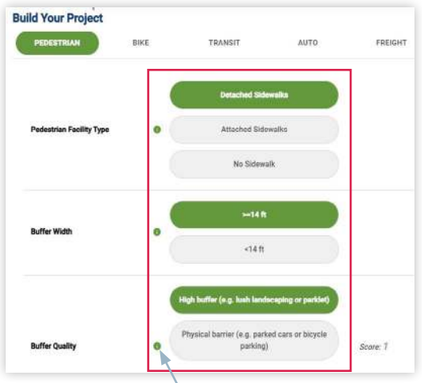
3. Right-of-Way Allocation

Build Your Project: Pedestrian

Existing



Proposed



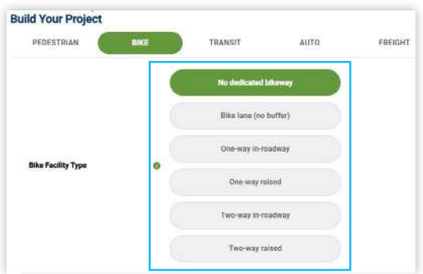
Fill out the project amenities for people walking for the existing and proposed designs.

Clicking the (i) provides additional information.

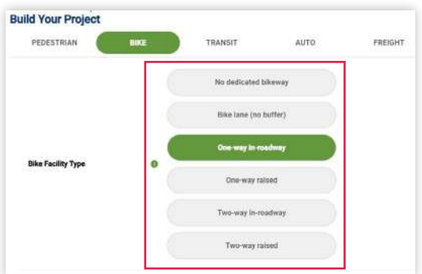
The pictures only shows a subset of all the amenities.

Build Your Project: Bike

Existing



Proposed

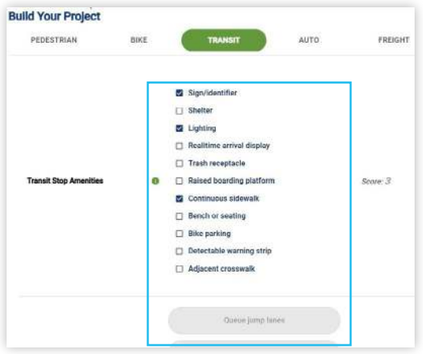


Fill out the project amenities for people riding bikes for the existing and proposed designs.

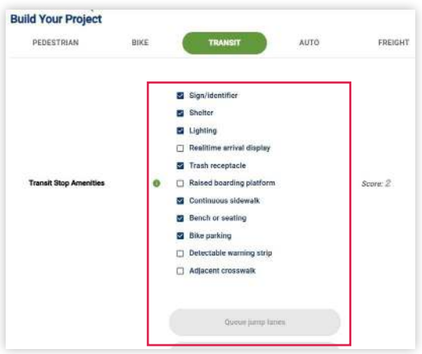
The pictures only shows a subset of all the amenities.

Build Your Project: Transit

Existing



Proposed

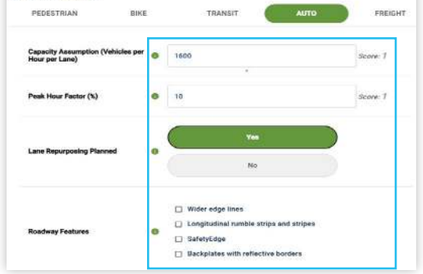


Fill out the project amenities for people riding transit for the existing and proposed designs.

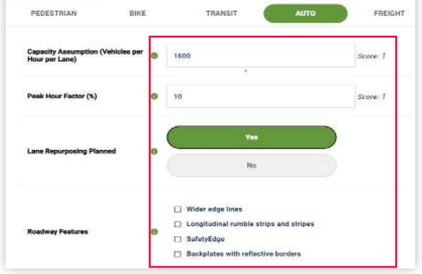
The pictures only shows a subset of all the amenities.

Build Your Project: Auto

Existing



Proposed



Fill out the project amenities for people driving for the existing and proposed designs.

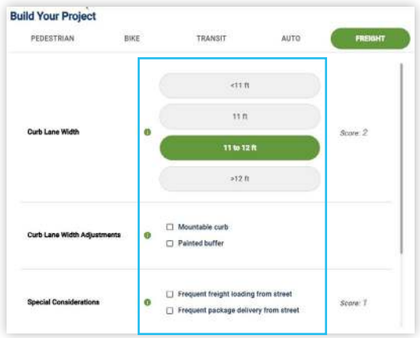
The pictures only shows a subset of all the amenities.

9 Mile Road, St. Clair Shores

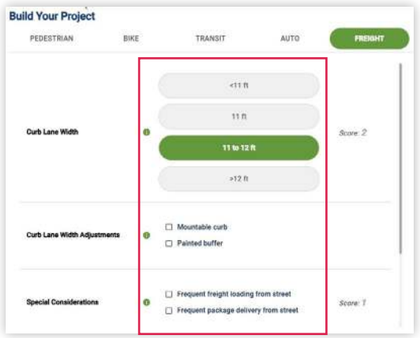
3. Right-of-Way Allocation

Build Your Project: Freight

Existing



Proposed



Fill out the project amenities for people moving freight for the existing and proposed designs.

The pictures only shows a subset of all the amenities.

Scoring Criteria for Multimodal Performance Evaluation

Existing

Average Score

Weakest Link Score

Proposed

Average Score

Weakest Link Score

Evaluating and comparing scores for the existing and proposed conditions helped identify potential enhancements for future study.

Gratiot Avenue, Detroit

Project Description
Gratiot Avenue is one of the main corridors running between Downtown Detroit and Macomb County. This case study covers all of Gratiot Avenue in Detroit. The Tool could also be applied for different segments in Macomb County.

- The street was designed for much higher traffic volumes
- Traffic speeds are relatively high, and crashes are very high
- The corridor sees frequent DDOT and SMART bus service, and the corridor has been studied for a future bus rapid transit route by the RTA of Southeast Michigan
- The Tool was used by MDOT, working with stakeholders and the public, in a 2024 Planning and Environmental Linkages Study
- The Tool was used to evaluate a wide range of alternatives to identify the "best" alternatives for further study

1. Project Initiation

Identify Project Corridor
Gratiot Avenue from Downtown Detroit to 8 Mile Road

Identify Road Jurisdiction
MDOT and City of Detroit

Gratiot Avenue, Detroit

Gratiot Avenue, Detroit

1. Project Initiation

Identify Stakeholders
Stakeholders involved in the application project included:
- City of Detroit
- SEMCOG
- MDOT
- Wayne County Department of Roads
- Detroit Department of Transportation
- SMART
- RTA of Southeast Michigan
- Businesses and residents

Use MDOT Complete Streets Process Guide for Southeast Michigan
The MDOT Complete Streets Process Guide was used to determine whether the Multimodal Tool could be used as an alternative to the MDOT Road Diet Checklist. Since the segment of Gratiot Avenue was part of an MDOT Planning and Environmental Linkages Study, the Multimodal Tool was used in lieu of the Road Diet Checklist.

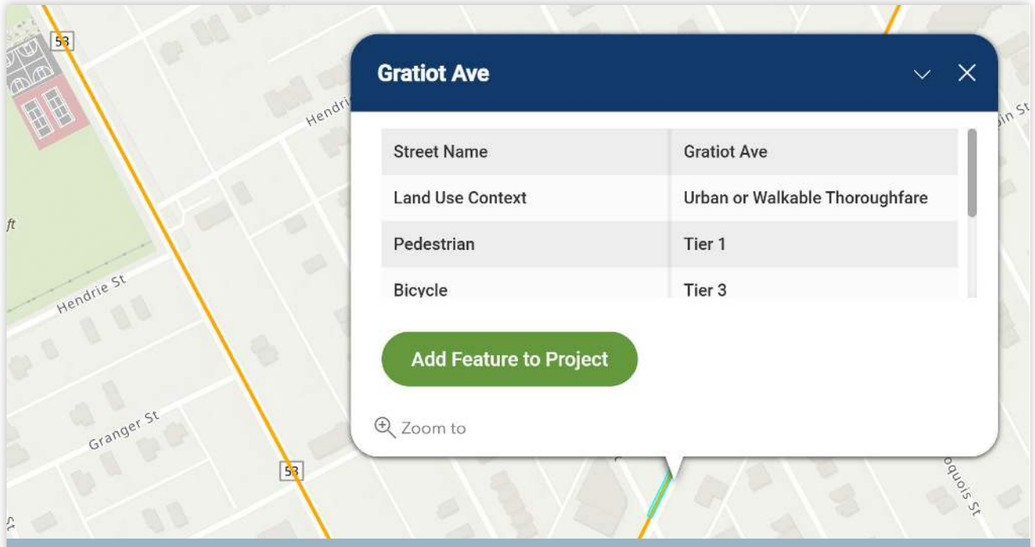
2. Modal Prioritization

Establish Project Vision
The project envisions:

- Improving safety for all users, especially people walking and biking
- Connecting travelers of all modes, ages, and abilities to opportunity
- Reconnecting neighborhoods and enabling local businesses to thrive
- Minimizing impacts to the environment

Using the Tool
Open the Multimodal Tool and search "Gratiot Avenue."

This was one of three segments tested in the Gratiot Avenue Planning and Environmental Linkages Study.



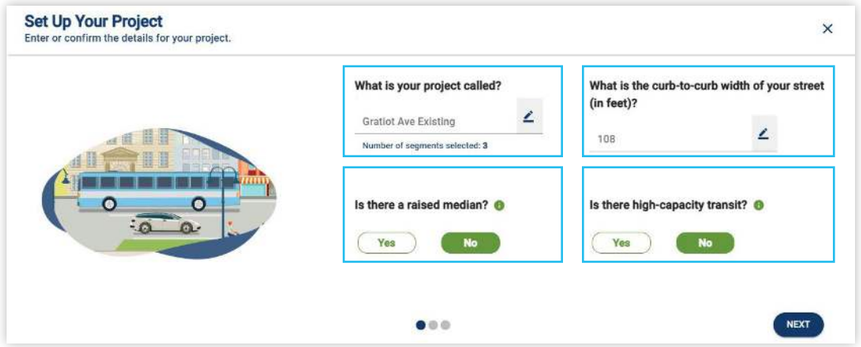
The project corridor is made of multiple individual segments. Since the Multimodal Tool tests one set of modal tiers and one land use context at a time, consider testing a representative segment of the entire corridor or testing multiple segments with different modal tiers and land use contexts.

Gratiot Avenue, Detroit

3. Right-of-Way Allocation

Set Up Your Project

Existing

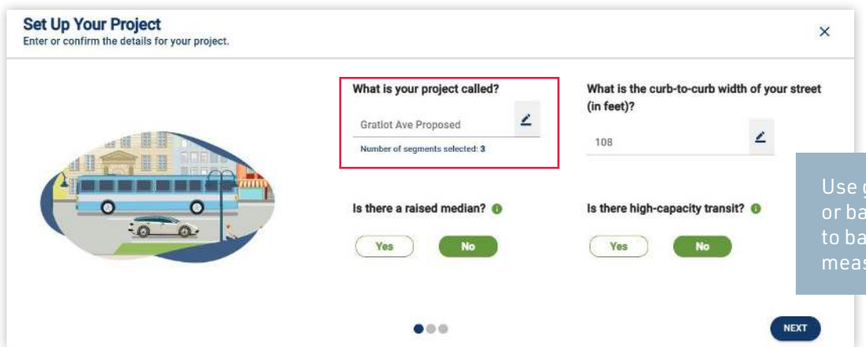


Describe your existing project:

- The project is called "Gratiot Avenue Existing"
- The right-of-way width is 108 feet
- There is not a raised median
- There is no high-capacity transit

Proposed

Enter existing conditions first, save the link to the existing conditions, and then go back and enter the proposed alternative.



Only the name of the proposed project changed.

Use given right-of-way, or back-of-sidewalk to back-of-sidewalk measurements.

Set Up Your Project

Existing

Describe your existing project:

- There are 6 lanes
- The speed limit is 35 mph
- The daily traffic is 20-30 thousand according to the SEMCOG Traffic Volume Map
- The land use context is Urban Walkable Thoroughfare

Proposed

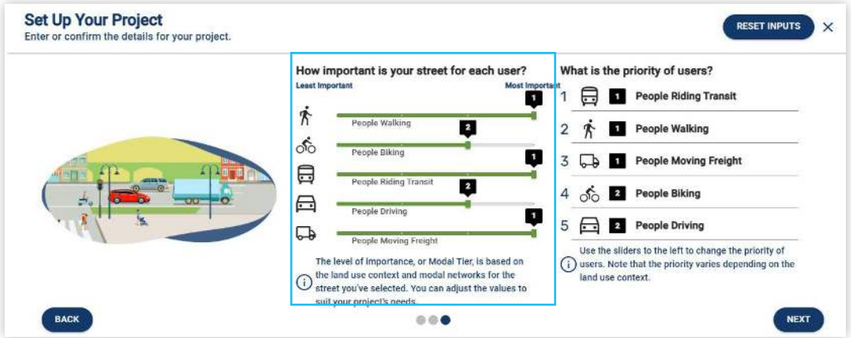
The number of lanes changed from 6 to 4 for the proposed project.

Gratiot Avenue, Detroit

3. Right-of-Way Allocation

Set Up Your Project

Existing



Rank how important your street is for each existing user, with 1 being the most important.

Proposed

The ranking of each proposed use remained the same.

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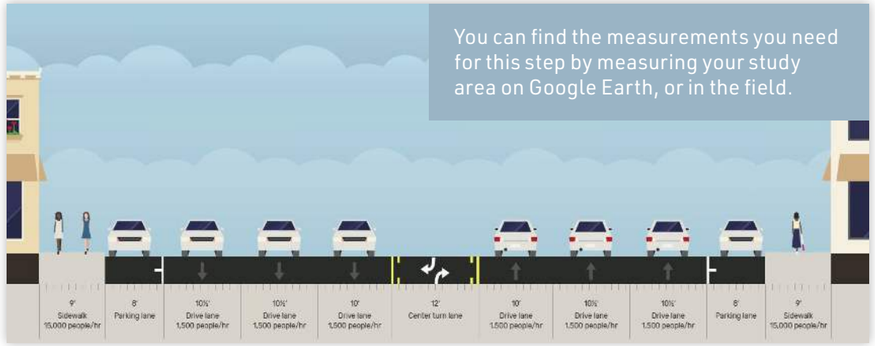
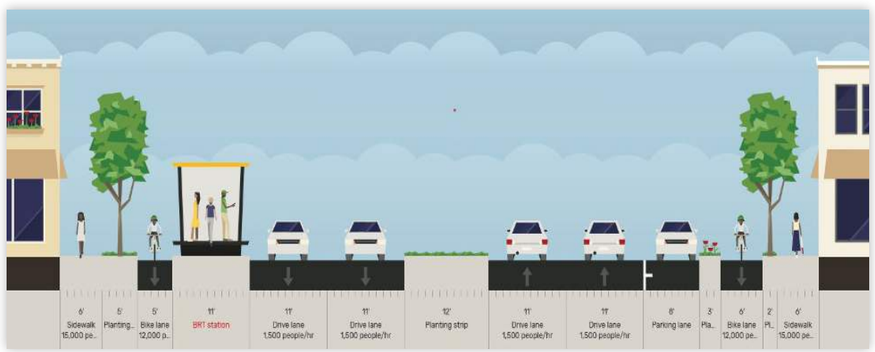
Build Your Project: Streetmix

Existing



Using Streetmix, model the existing geometry of your roadway.

Proposed



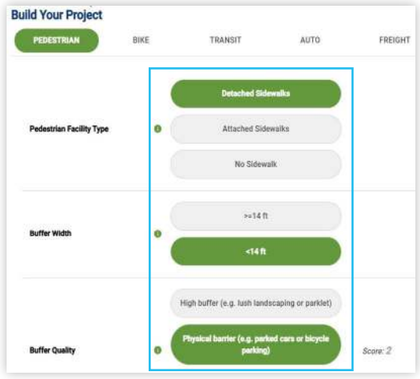
Using Streetmix, model the geometry you would like to see along the roadway.

Gratiot Avenue, Detroit

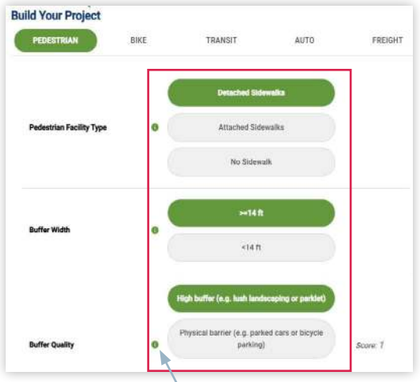
3. Right-of-Way Allocation

Build Your Project: Pedestrian

Existing



Proposed



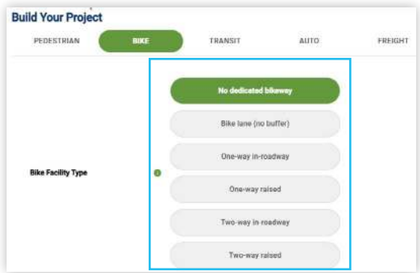
Fill out the project amenities for people walking for the existing and proposed designs.

Clicking the (i) provides additional information.

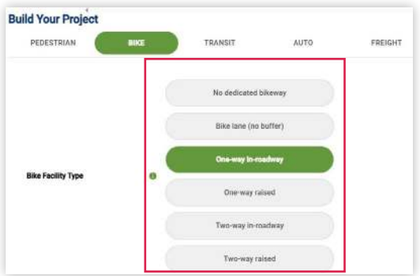
The pictures only shows a subset of all the amenities.

Build Your Project: Bike

Existing



Proposed

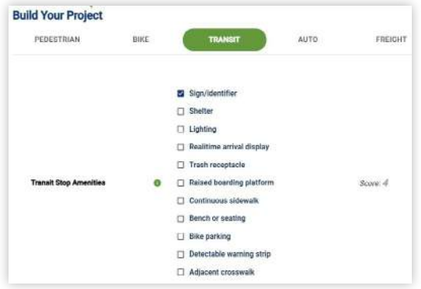


Fill out the project amenities for people riding bikes for the existing and proposed designs.

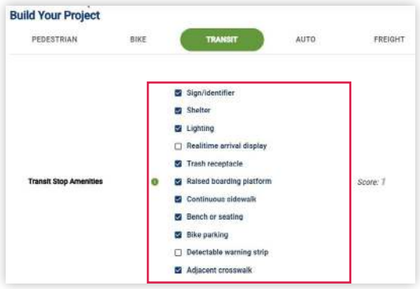
The pictures only shows a subset of all the amenities.

Build Your Project: Transit

Existing



Proposed

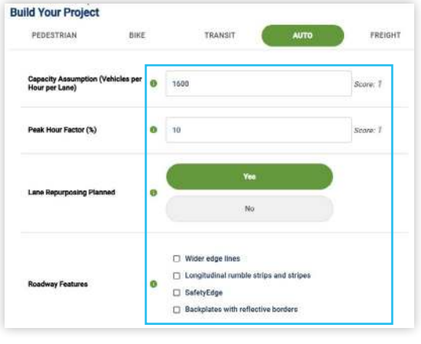


Fill out the project amenities for people riding transit for the existing and proposed designs.

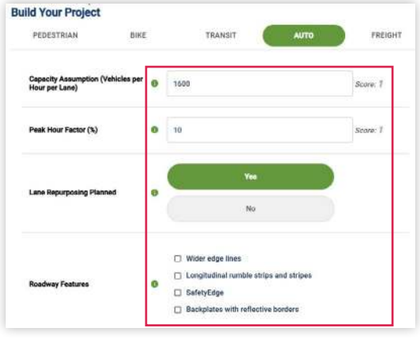
The pictures only shows a subset of all the amenities.

Build Your Project: Auto

Existing



Proposed



Fill out the project amenities for people driving for the existing and proposed designs.

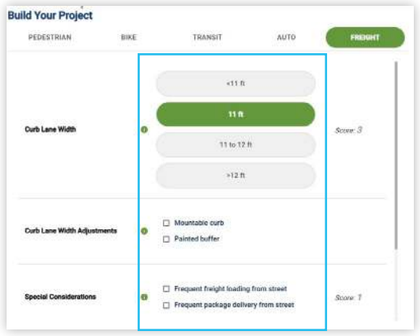
The pictures only shows a subset of all the amenities.

Gratiot Avenue, Detroit

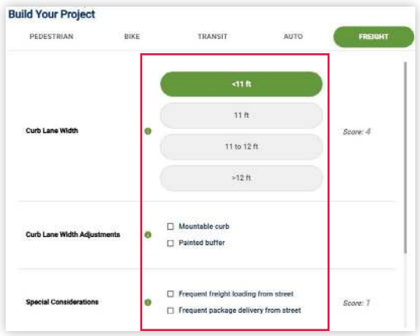
3. Right-of-Way Allocation

Build Your Project: Freight

Existing



Proposed



Fill out the project amenities for people moving freight for the existing and proposed designs.

The pictures only shows a subset of all the amenities.

Scoring Criteria for Multimodal Performance Evaluation

Existing

Average Score

Weakest Link Score

Proposed

Average Score

Weakest Link Score

Evaluating and comparing scores for the existing and proposed conditions helped the project team screen out unsuitable project alternatives and identify a preferred alternative.

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