

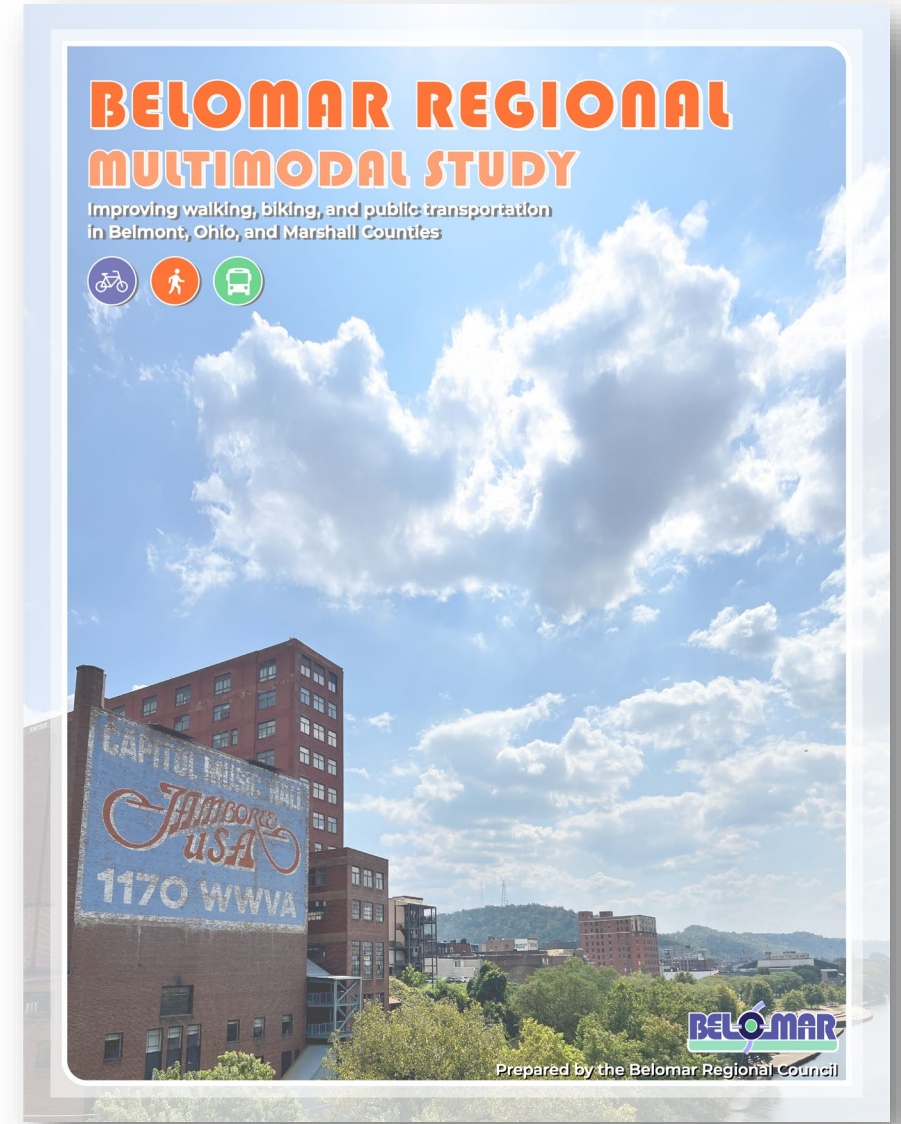
Mapping What Matters: Practical Plans with GIS Success

Belomar Regional Council



Agenda

1. Introductions
2. Project Overview
3. Analyze, Identify, & Prioritize
4. Leveraging Planning for the Future



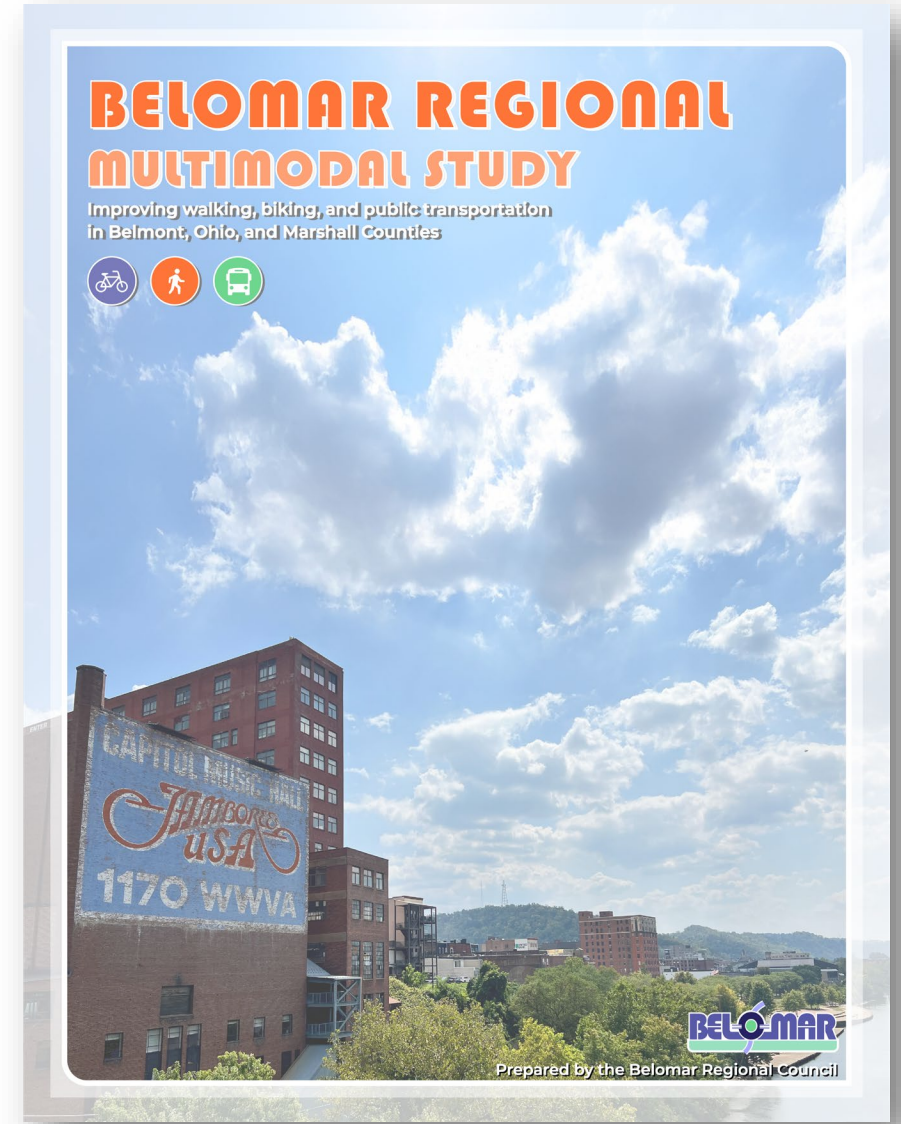
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Presenter Introductions



Samuel L. Richardson
Belomar Regional Council
Transportation Planning Director

Sam is the Transportation Planning Director for the Bel-O-Mar Regional Council, Vice Chair of the West Virginia Association of Metropolitan Planning Organizations and serves on the WV LTAP Advisory Board.



BURGESS & NIPLE
Engineers ■ Architects ■ Planners

Mark Sullivan, AICP
Burgess & Niple
Transportation Planner

Mark is a transportation planner and engineer who joined B&N in 2024 in the firm's Columbus, Ohio office. He brings five years of private-sector experience in transportation engineering and urban planning.

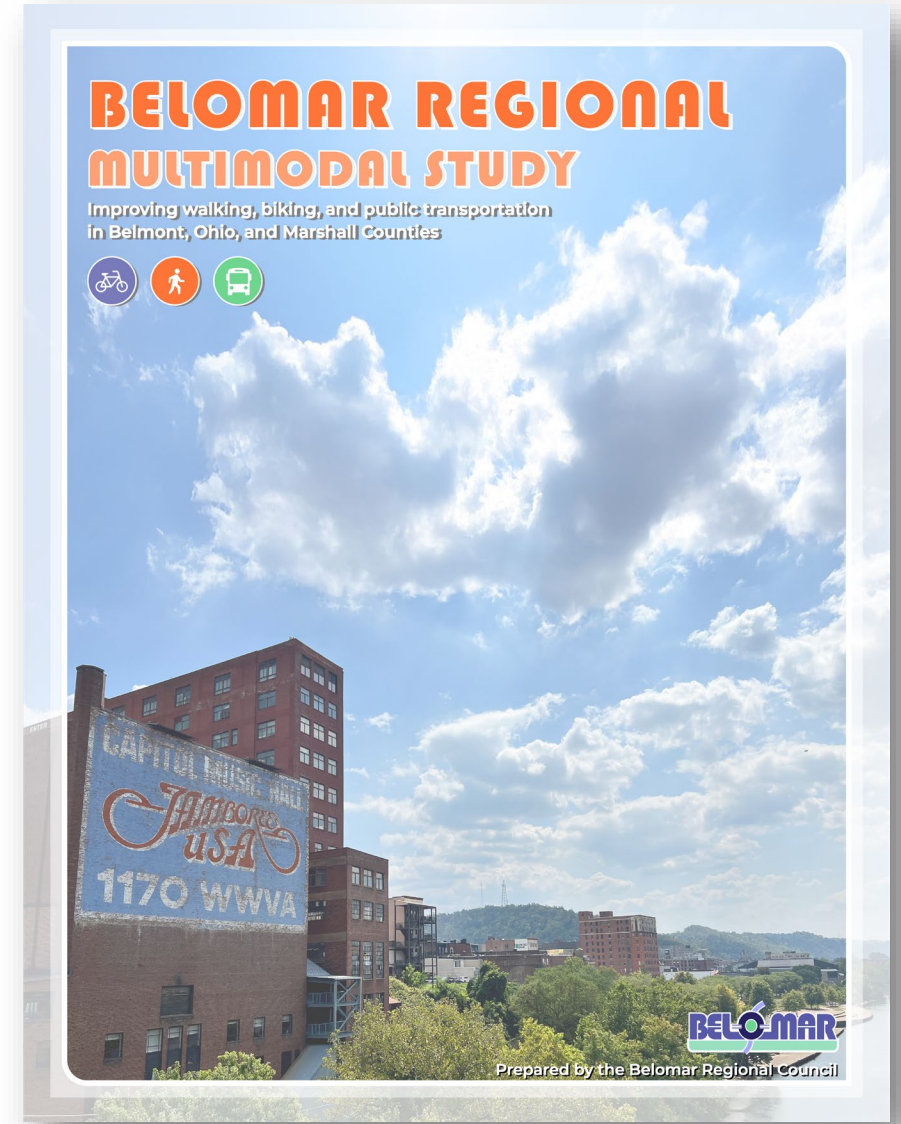
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Project Overview

- Regional multimodal study to identify active transportation opportunities and evaluate transit supportive infrastructure (TSI) and fixed-route efficiency
- Served as precursor to and integrates with the required Metropolitan Transportation Plan (MTP)
- No plan focused on non-motorized transportation in place
- Helped new Metropolitan Planning Organization (MPO) staff learn the fundamental constraints and opportunities quickly

Goal #1:

“ Pinpoint **quick-win infrastructure projects** at the community level that improve walkability and access to public transportation. ”

Goal #2:

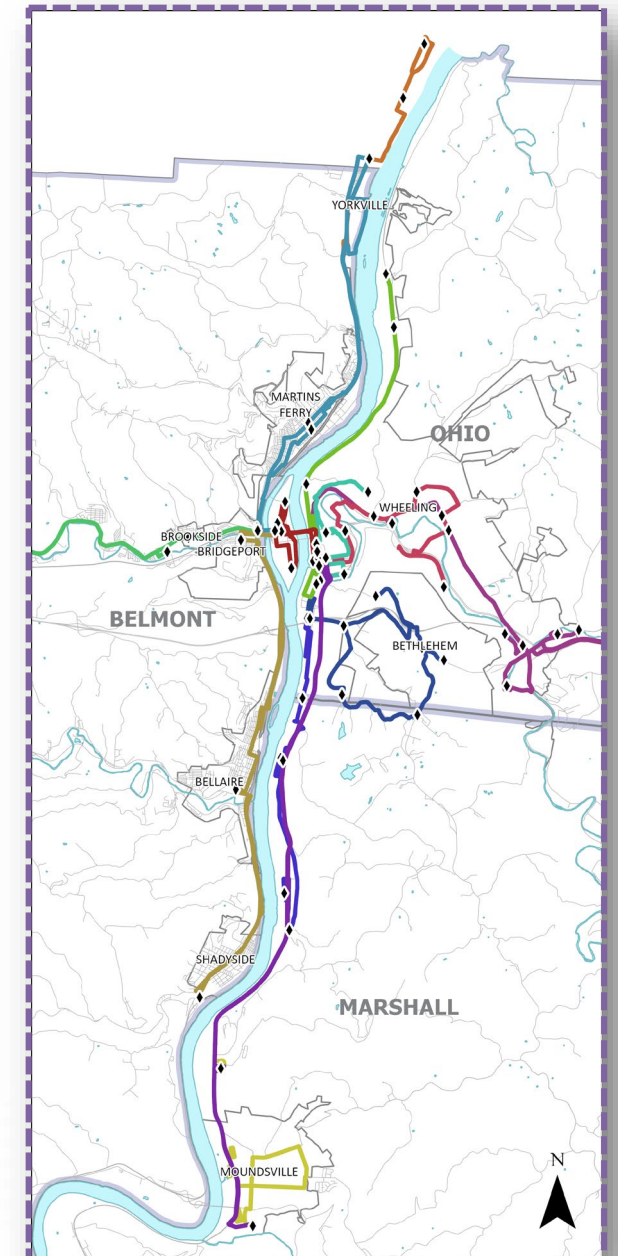
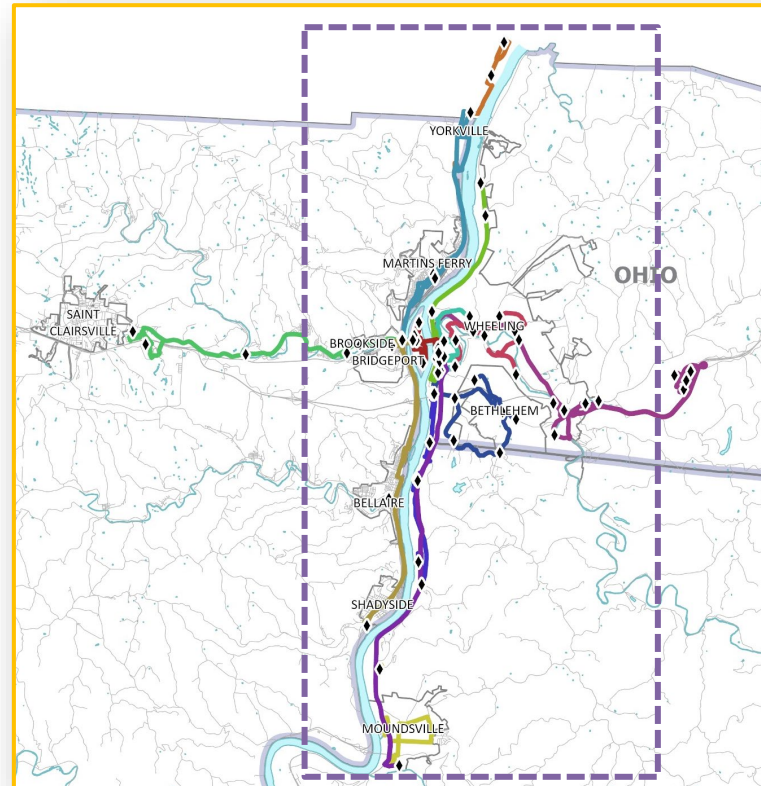
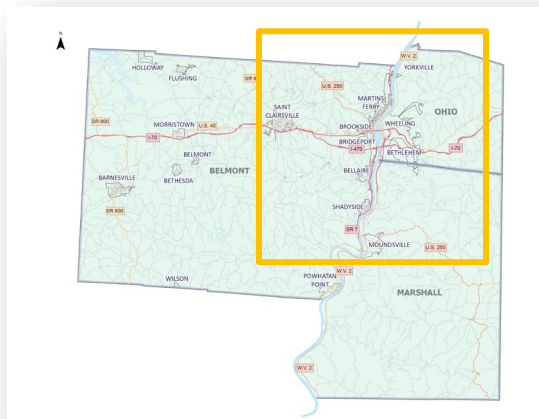
“ Propose **transit service strategies** to improve transit experience, service, and connectivity to key points of interest within the transit service area. ”

Goal #3:

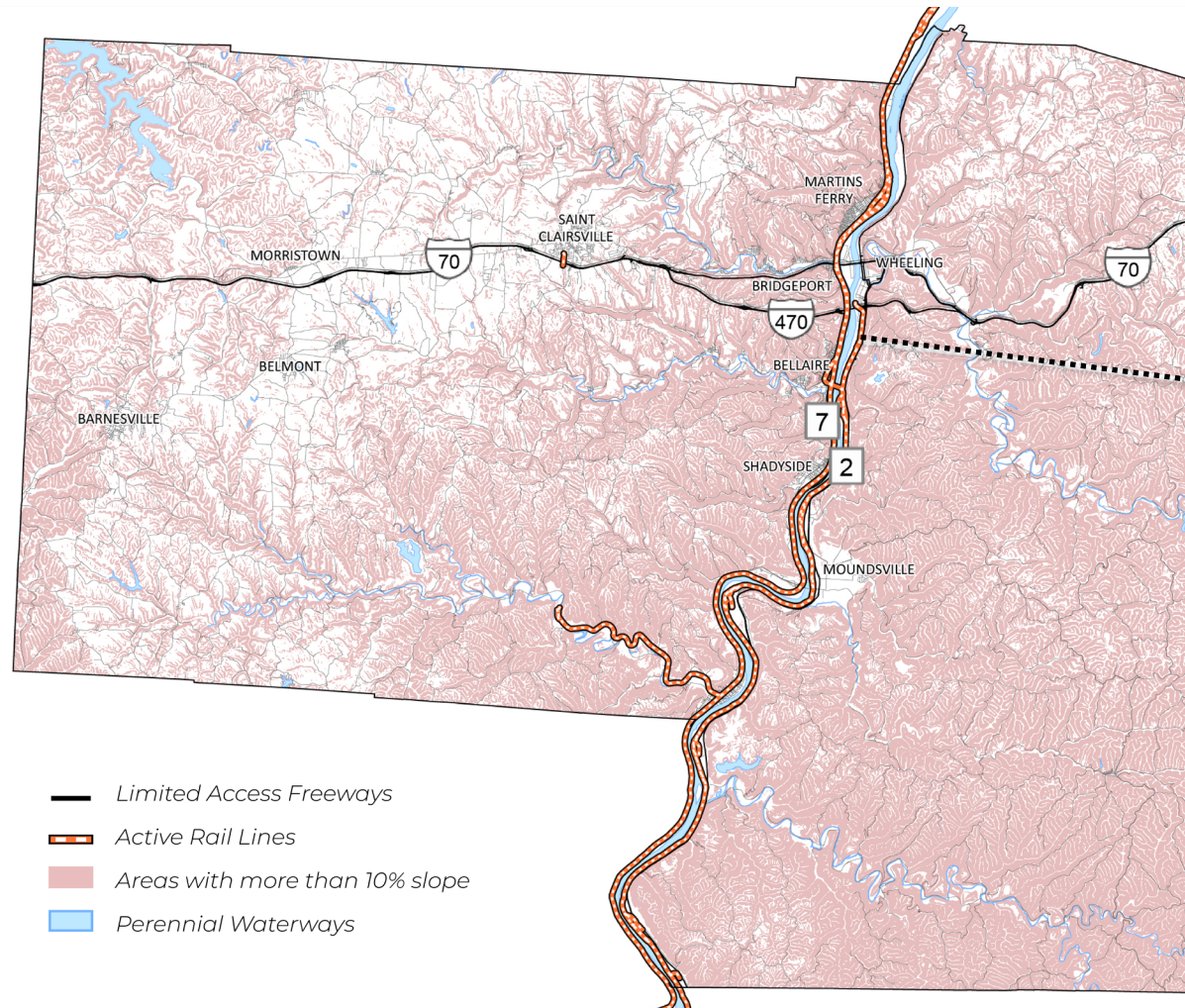
“ Identify **visionary active transportation opportunities**, and use study findings to empower communities to fund future projects and plans to implement them. ”

Project Overview: Study Area

- 2 States (Ohio & West Virginia)
- 3 Counties (Belmont, Ohio, & Marshall)
- 2 Transit Agencies (OVRTA & EORTA)
- 12 Fixed Routes
- 64 Transit Stops
- Paratransit Services



Project Overview: Overcoming Transportation Barriers

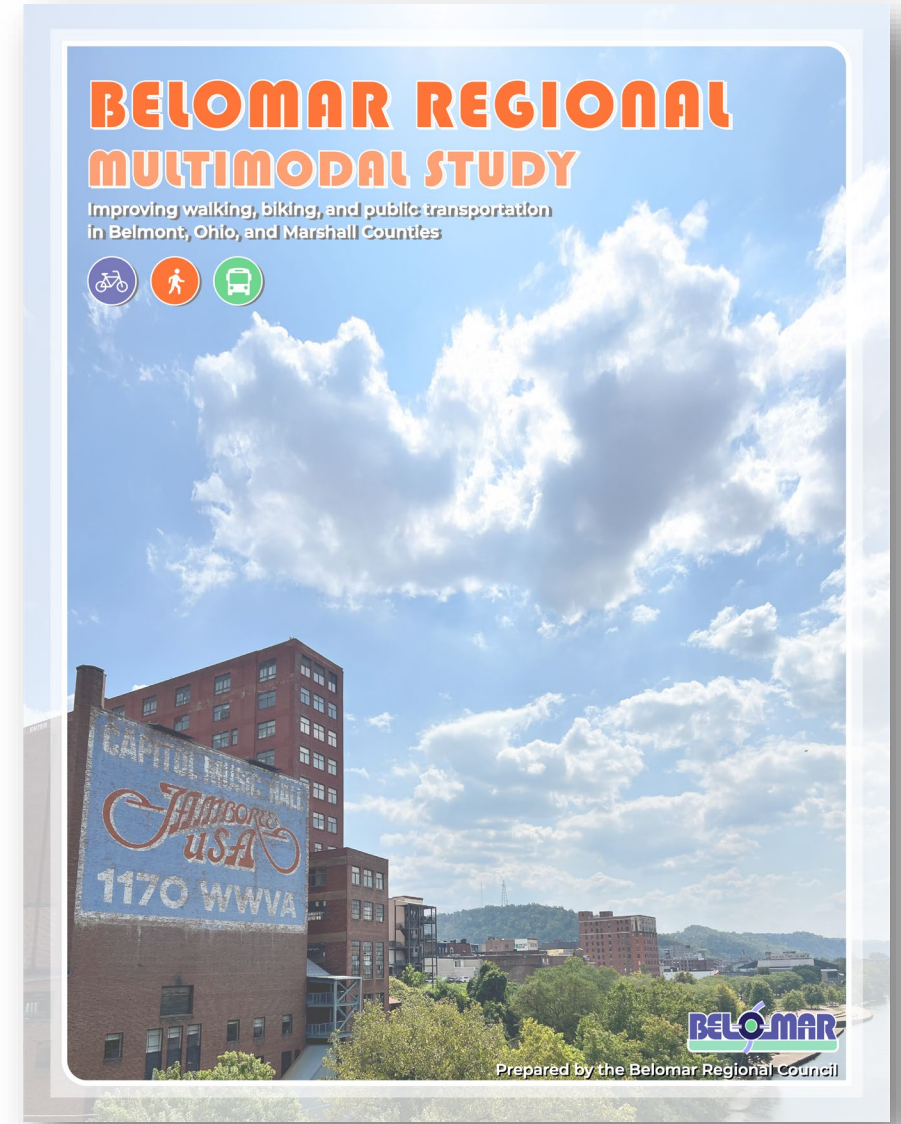


Noteworthy elements of the Belomar region and the development of this study include:

- The region's geography presents real barriers to connectivity, particularly for people walking, biking, or using transit. Addressing these challenges will require targeted, community-scale investments.
- A strong foundation of prior planning work exists—from city plans to statewide strategies—which this study builds upon to create actionable, locally relevant recommendations.
- The study is designed for implementation, with goals focused on quick wins, improved transit connectivity, and long-range active transportation visioning.

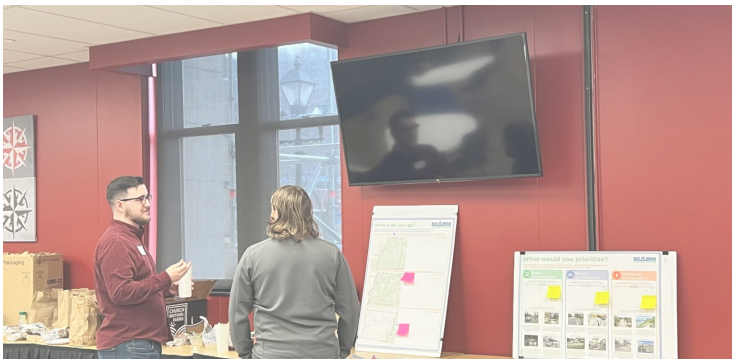
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Analyze, Identify, & Prioritize: Project Engagement

Public Open House



Local Leadership Stakeholder Interview Focus Group Discussions

What you told us...

Local Leadership Feedback

Address sidewalk gaps and maintenance across the region, especially in rural communities.

Implement safe, protected bike facilities inside cities and villages.

Identify bike/ped opportunities including: rails-to-trails, bike routes between communities, and new Ohio River crossings.

Public Survey

User Experience: Transit

When and where do you use transit today?

- 27% of respondents use transit to complete trips at least once per month
- 58% never use transit
- Common Trip Purposes:
 1. Medical Appointments
 2. Shopping
 3. Commuting

What is your experience like?

Percentages represent non-neutral responses

		Strongly Disagree	Disagree	Agree	Strongly Agree
					
Transit is safe	15 Neutral Responses	0%	13%	45%	27%
Stops are easy to find and get to	13 Neutral Responses	24%	51%	18%	8%
Transit is affordable	29 Neutral Responses	0%	12%	56%	32%
Transit is comfortable	38 Neutral Responses	15%	15%	42%	27%
Transit is easy to use and navigate	24 Neutral Responses	15%	48%	30%	8%
Transit gets me to popular destinations	28 Neutral Responses	15%	38%	35%	12%
Transit runs during hours I need it	26 Neutral Responses	42%	39%	14%	6%

User Experience: Biking

When and where do you bike today?

- 13% of respondents bike to complete trips at least once per month
- 61% never bike for transportation
- Common Trip Purposes:
 1. Recreation
 2. Social/Leisure
 3. Commuting

What is your experience like?

Percentages represent non-neutral responses

		Strongly Disagree	Disagree	Agree	Strongly Agree
					
It is safe to ride a bike in my community	24 Neutral Responses	15%	44%	31%	10%
Bicyclists and drivers respect each other on the road	24 Neutral Responses	30%	45%	23%	3%
There are high quality trails or bike lanes near my community	16 Neutral Responses	21%	40%	31%	8%
I would feel confident biking on country roads	15 Neutral Responses	49%	33%	14%	4%

Analyze, Identify, & Prioritize: Analysis Approach

Analysis Goals:

- 1** Assess local transit demand across the Wheeling metro area to identify the most critical routes and stops in the system
- 2** Create a metric (or data proxy) that can be summarized stop-by-stop and route-by-route to compare across the entire network
- 3** Validate this analysis with input from the transit providers and dispatchers to verify it aligns with how ridership varies across the network
- 4** Visualize this information in an intuitive and meaningful way so it can be used as an input for the region's future Comprehensive Operations Analysis (COA)

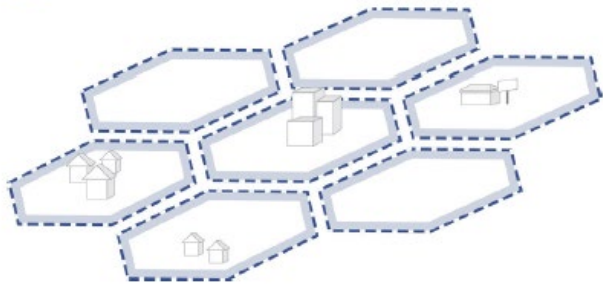
Analyze, Identify, & Prioritize: Analysis Approach

1. Establish the right granularity for the detail required

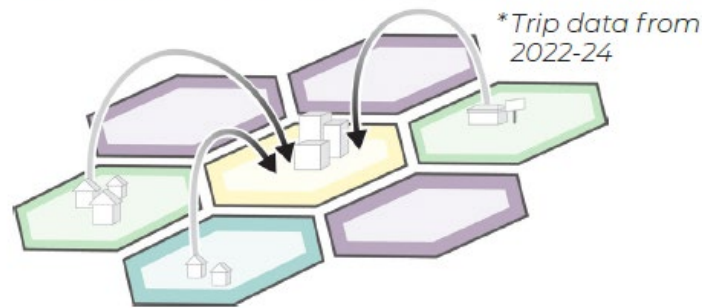
Solution:

- Utilize the hex-grid to define granular and equal analysis zones across the study area
- This hex grid is for transportation services like Uber to identify zones of activity
- This grid would become the shape that we “poured” our data into

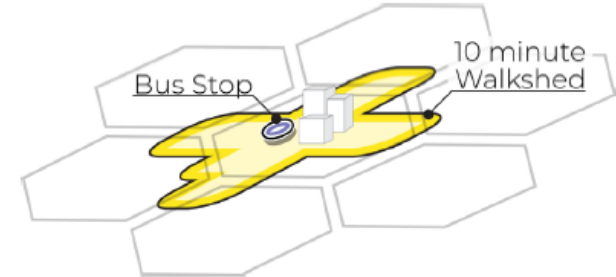
1 Define Traffic Analysis Zones



2 Origin-Destination Analysis



3 Estimate Walkshed Demand



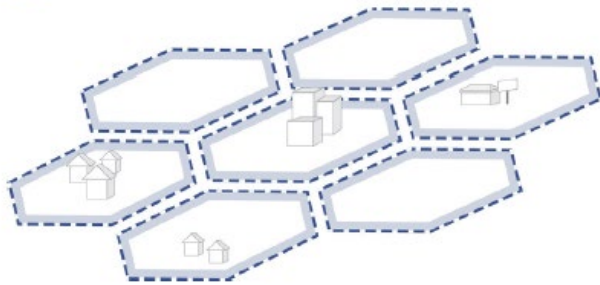
Analyze, Identify, & Prioritize: Analysis Approach

2. Identify a proxy measure for area activity (trips going to/from)

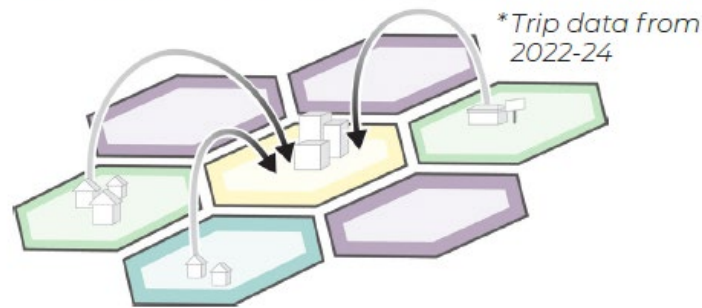
Solution:

- Utilize Streetlight (location-based transportation data service) for origin-destination endpoint for all vehicle trips as a proxy for transportation demand between locations
- Utilize our hex grid geometry to define origin-destination zones across our transit service area

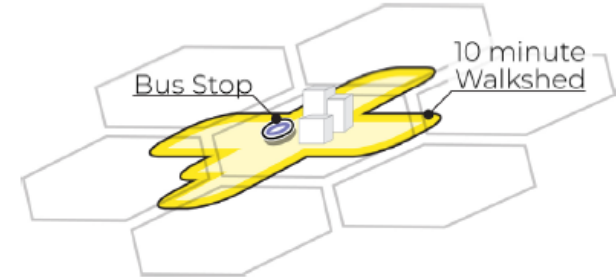
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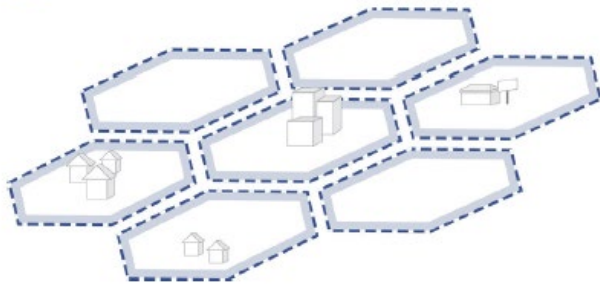
Analyze, Identify, & Prioritize: Analysis Approach

3. Define the data at a “transit-scale” associated with stops and routes

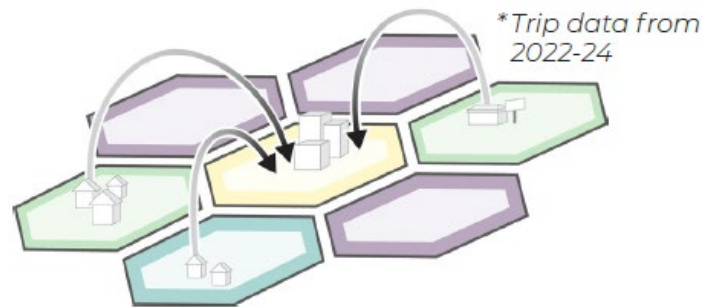
Solution:

- Establish a 10-minute walkable distance from all 62 transit stops using Esri network analyst tools
- Transcribe the Streetlight OD data from the hexes to 10-minute walksheds using Esri geoprocessing tools

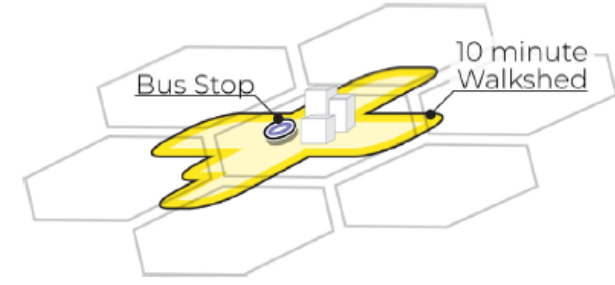
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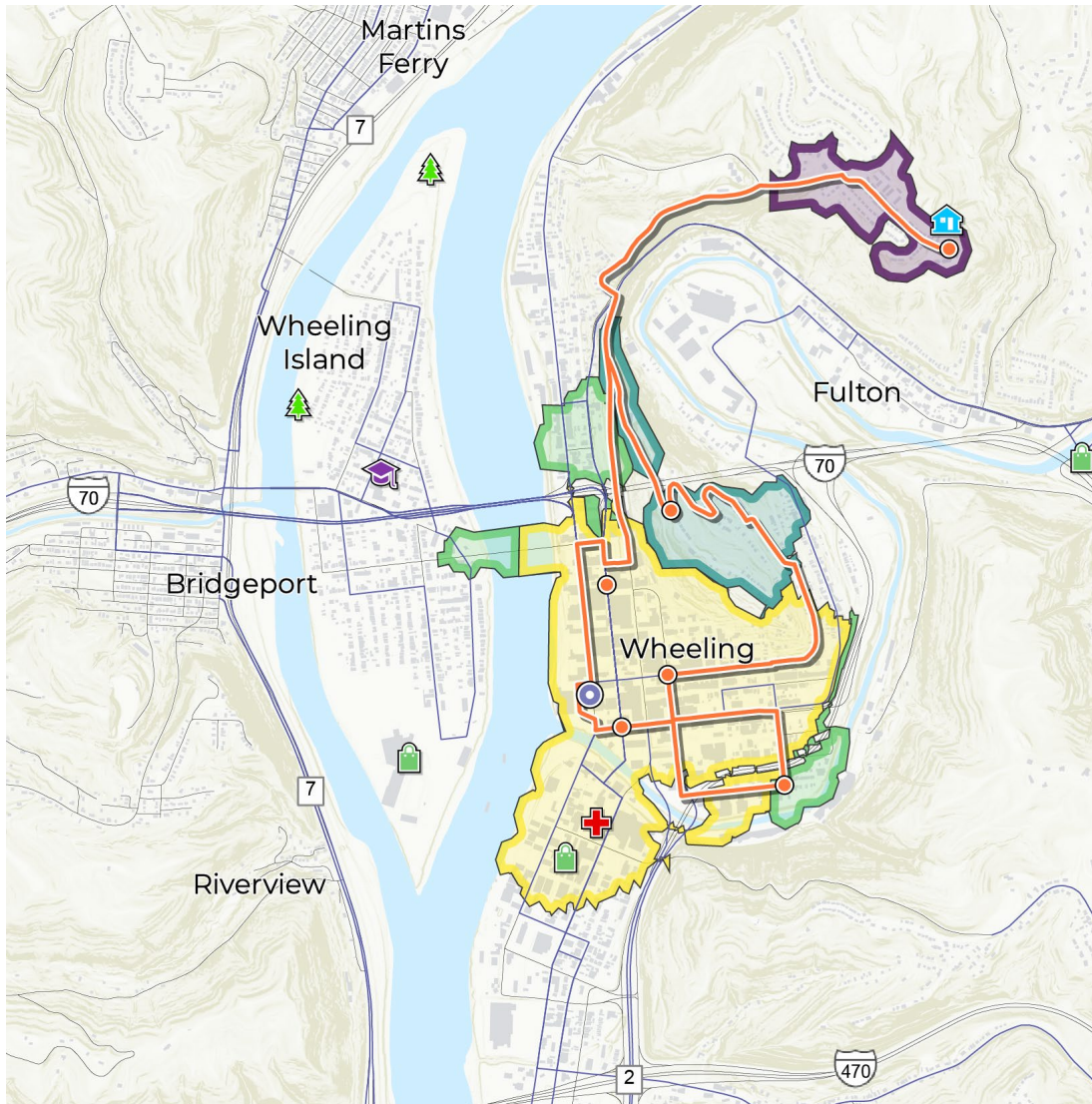
2 Origin-Destination Analysis



3 Estimate Walkshed Demand



Analyze, Identify, & Prioritize: Analysis Results



Result:

- Graduated colors based on total trips to and from the walkshed each day
- Include key points of interest that reinforce the analysis results
- Create a map series for each route with a summary table for stops

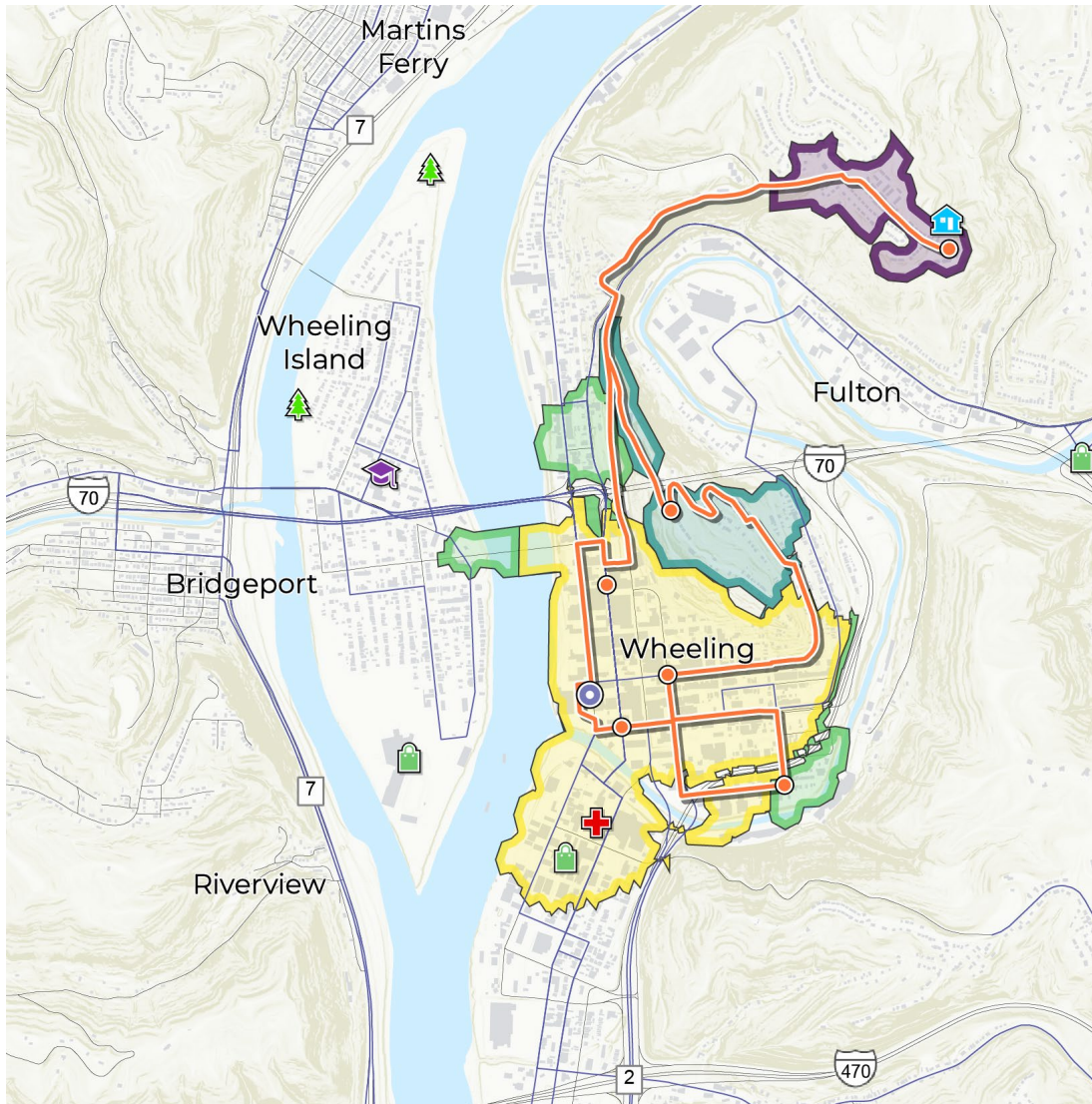
Trip Demand

	Over 5,000 Trips/day
	2,500 - 5,000 Trips/day
	1,000 - 2,500 Trips/day
	500 - 1,000 Trips/day
	Under 500 Trips/day

Points of Interest

	Medical Center
	Multi-family Housing
	Shopping/Entertainment
	Education/Training
	Park/Recreation

Analyze, Identify, & Prioritize: Analysis Results

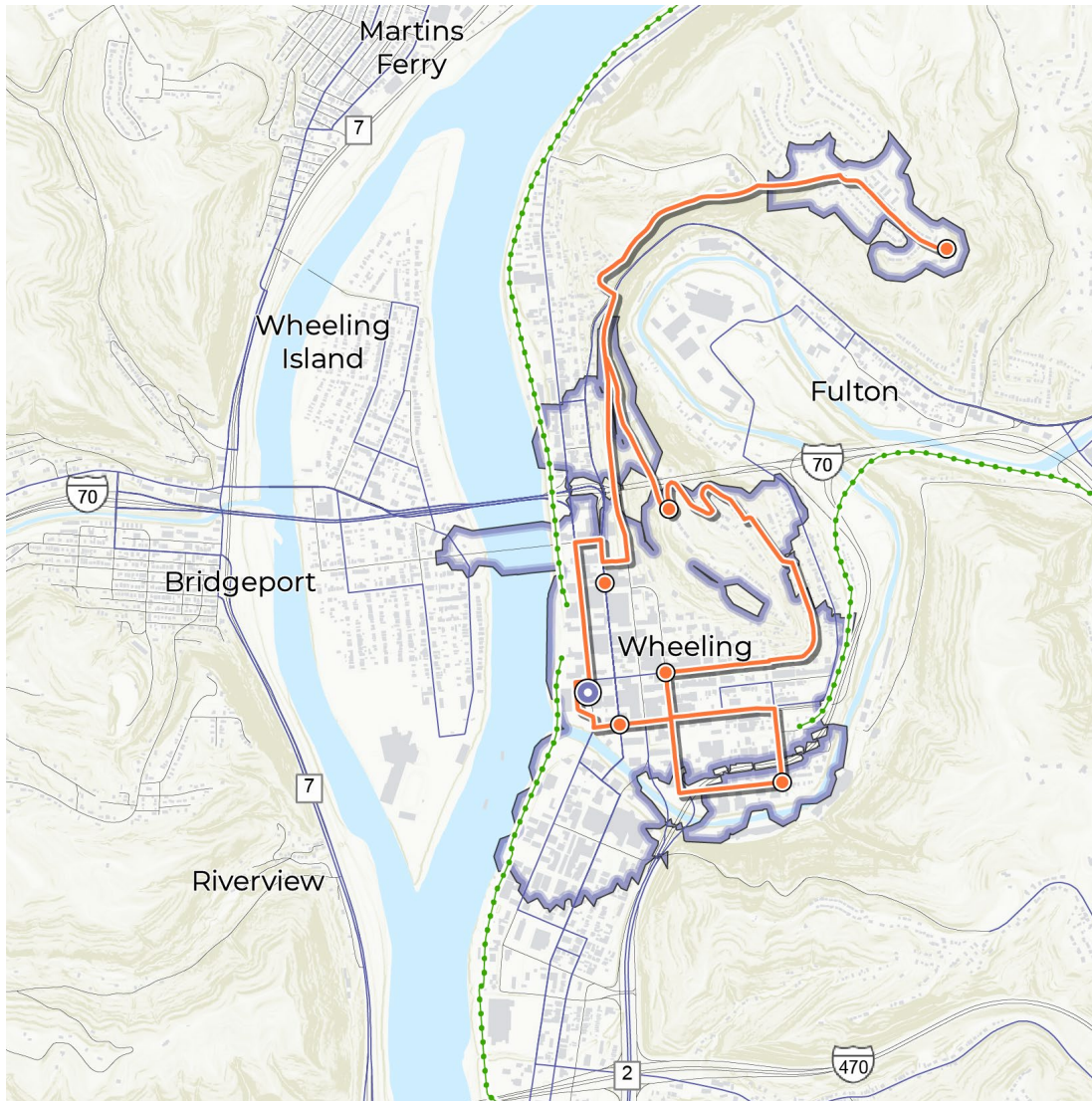


Applying the Analysis:

- A qualitative trip demand data proxy comparable across all routes and stops
- A clear guidance to prioritizing TSI improvements based on demand
- Baseline to inform changes to network alignment and stop locations future studies

	<i>Bus Stop</i>	<i>Community/ Location</i>	<i>Population within 10 min</i>	<i>Daily Trips within 10 min</i>
🕒	Intermodal Center	Wheeling	1,100	5,700
📍	16th & Market St	Wheeling	1,300	6,500
📍	19th & Wood St	Wheeling	550	3,000
📍	14th & Eoff St	Wheeling	1,200	6,500
📍	Top of Wheeling Hts	Wheeling	300	1,100
📍	North Park Apartments	Wheeling	150	450
📍	11th & Market St	Wheeling	1,200	4,000

Analyze, Identify, & Prioritize: Additional Analysis



Inventory of Supportive Infrastructure:

- Transit Supportive Infrastructure (TSI):
 - the physical networks and amenities that connect people to public transit
 - Ex: bus shelters, street crossings, sidewalks, and bike facilities
- Collected using available data, aerial imagery, Street View, and local feedback
- TSI checklist associated with each stop

	Bus Stops	Unmarked Crosswalk	Marked Crosswalk	Sidewalk	Bike Facility
Direction of Travel					
Intermodal Center		●	○	●	●
16th & Market St		○	●	●	●
19th & Wood St		○	○	●	●
14th & Eoff St		○	●	●	●
Top of Wheeling Hts		●	○	●	○
North Park Apartments		○	○	●	○
11th & Market St		●	○	●	○

Analyze, Identify, & Prioritize: Project Recommendations

Transit Supportive Infrastructure

Each stop location has opportunities for small improvements that can make pedestrian access safer and more comfortable. Communities should begin work at priority stops. These priority stops were identified through this study's demand assessment, and are the busiest stop locations in each county. Several additional stops are included as priorities in response to input from local leaders and public engagement.

- Priority Stop ★
- Stop with Transfers 
- Stop without Transfers 
- Recommended Project 
- Not recommended or already present 

City/Village	Transit Stop Name	Priority Location	Stop Type	Stop Signage	High-vis Crosswalk	Shelter or Seating	Sidewalk
Belmont	Bellaire Kroger (Southside)	★					
	Blaine Barton	-					
	Bridgeport Howard & Marion St Wilson's Furniture National Rd	-					
		-					
		★					
	Brookside Dairy Queen Riesbeck's (Westside)	-					
		-					
	Martins Ferry Hanover & Zane Hwy Hanover & 4th St	★					
		★					
	Shadyside Shadyside Care Center	★					
	Unincorporated Walmart (Westside) Marshall's	★					
		★					

Project Recommendations

Active Transportation & TSI

22 Sidewalk Gaps
Near Public Transit

47 High-visibility
Crosswalk Locations

4 Active Transportation
Projects & Studies

Transit Stops & Service Strategies

29 Priority Bus
Stop Locations

52 Bus Stop
Amenities Projects

3 New Transfer Stops
at Existing Locations

11 New Bus Stop &
Transfer Locations

6 New Transit
Service Strategies

Analyze, Identify, & Prioritize: Project Recommendations

Transit Stops and Services

Transit access is only as good as its stop location. Chapter 4 reviewed each fixed route to highlight areas currently outside of a 10-minute walk from a transit stop. New stop locations can close these gaps and connect to key points of interest. There are also opportunities improve transit service with new transfer stations between adjacent routes. These recommendations are summarized below:

- Existing Stop without Transfers 
- Existing Stop with Transfers 
- No Existing Stop 
- Recommended New Stop 
- Recommended New Transfer Stop 

Transit Stop Locations

	City/Village	Transit Stop Name	Recommended Transit Stop Change		Transit Routes Affected
			Exst.	Rec.	
Belmont	Bellaire	Harrison & 41st			Shadyside
	Martins Ferry	Broadway & Breitenstein Ln			MF Rayland, MF Yorkville
	Shadyside	Central & 39th			Shadyside
	Unincorporated	Church St & National Road			Blaine Mall
Marshall	McMechen	Dollar General			McMechen, Reynolds/DMV
	Moundsville	Walmart (Southside)			Reynolds DMV
		Jefferson & 7th			Reynolds DMV

Project Recommendations

Active Transportation & TSI

22 Sidewalk Gaps Near Public Transit

47 High-visibility Crosswalk Locations

4 Active Transportation Projects & Studies

Transit Stops & Service Strategies

29 Priority Bus Stop Locations

52 Bus Stop Amenities Projects

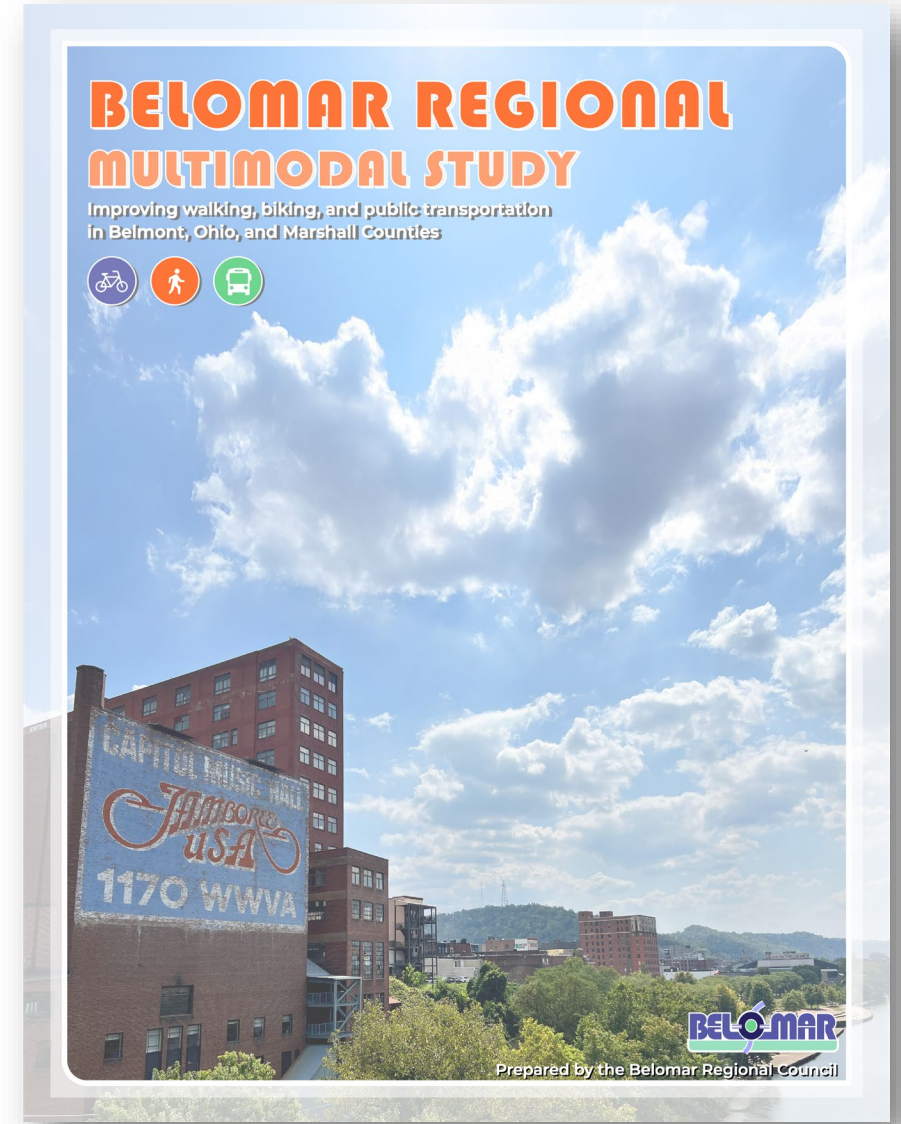
3 New Transfer Stops at Existing Locations

11 New Bus Stop & Transfer Locations

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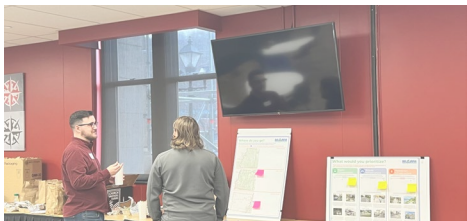
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Listen, Analyze, Need: Developing Strong Funding Narratives

Listen



What you told us...

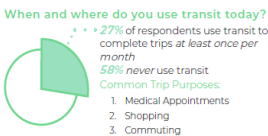
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Implement safe, protected bike facilities inside cities and villages.

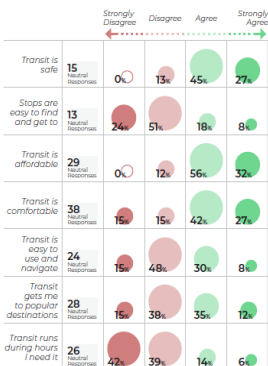
Identify bike/ped opportunities including: rails-to-trails, bike routes between communities, and new Ohio River crossings.

User Experience: Transit

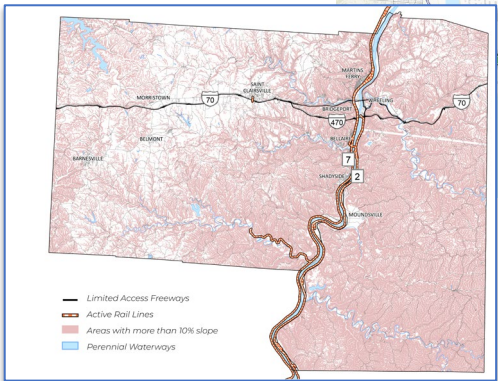
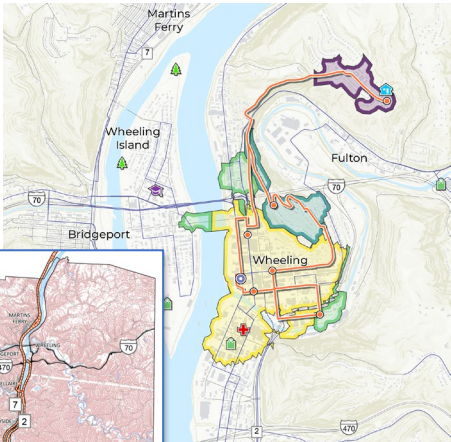


What is your experience like?

Percentages represent non-neutral responses



Analyze



Need

Project Recommendations

Active Transportation & TSI

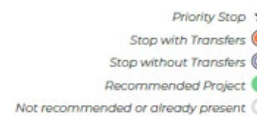
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City/Village	Transit Stop Name	Priority Location	Stop Type	Stop Signage	High-vis Crosswalk	Shelter or Seating	Sidewalk
Bellaire	Kroger (Southside)	★	○	●	●	○	●
Blaine	Barton	-	○	●	●	○	●
Bridgeport	Howard & Marion St	-	○	●	●	○	●
	Wilson's Furniture	-	○	●	●	○	●
	National Rd	★	○	●	●	○	●
Brookside	Daily Queen	-	○	●	●	○	●
	Riesbeck's (Westside)	-	○	●	●	○	●
Martins Ferry	Hanover & Zane Hwy	★	○	●	●	○	●
	Hanover & 4th St	★	○	●	●	○	●
Shadyside	Shadyside Care Center	★	○	●	●	○	●
Unincorporated	Walmart (Westside)	★	○	●	●	○	●
	Marshalls	★	○	●	●	○	●

Project Funding Opportunities

- Transportation Alternatives Grants (WV and OH)
- BUILD grants
- Rural and Tribal Assistance Program
 - Planning and engineering only
 - <200k population areas only
- Regionally suballocated funds
 - Carbon Reduction Program (CRP)
 - Surface Transportation Block Grant (STBG)
 - Community Development Block Grant (CDBG)
 - Ohio only
- FTA 5307 Urban Area Formula Program



GIS Strengthens Project Funding Narratives

- **Logos:** Lays the groundwork for the logics of the need-based case
- **Ethos:** Uses credible analytical techniques
- **Pathos:** Uses strong illustrations of analysis to catch reviewers' attention
- The project funding request is not an afterthought to the announcement of available funding



Wrapping it all up

1. Illustrative maps of strong analytical techniques present great plans
2. Planning builds credibility
3. Planning prepares you for funding applications

