Westshore Corridor Transportation Project

West Shore Corridor Alternatives Analysis Study

Chapter 3 - Appendix

Public Involvement Materials

June 2013

Public Meeting #1 Minutes
Westshore Corridor Transportation Study

Westshore Corridor Transportation Study

Public Meeting #1

Dates: *September 14, 15 and 16, 2010*
Locations: *Cuyahoga County, Lorain County and Erie County*

0Cuyahoga County
September 14, 2010
6:00-8:00 p.m.
St. John Medical Center
(29000 Center Ridge Road)
Building 2, 1st floor, Auditorium B
29101 Health Campus Drive
Westlake, OH 44145

Lorain County
September 15, 2010th
6:00-8:00 p.m.
Black River Landing
421 Black River Lane
Lorain, OH 44052

Erie County
September 16, 2010
6:00-8:00 p.m.
Erie County Administration Building
3rd Floor Commissioner's Chambers
2900 Columbus Avenue
Sandusky, OH 44870

Participating Project Team Members

Betty Blair	*Lorain County Commissioner*	*440.329.5112*	*bblair@loraincounty.us*
Bill Monaghan	*Erie County Commissioner*		*bmonaghan@erie-county-ohio.net*
Virginia Haynes	*WCTF Co-Chair*	*440.328.2362*	*vhaynes@loraincounty.us*
Dr. David Hintz	*WCTF Co-Chair*	*440.759.7069*	*davidjhintz@yahoo.com*
Richard Enty	*Lorain County Transit*	*440.328.2493*	*lctdirector@loraincounty.us*
Tim Rosenberger	*Parsons Brinckerhoff*	*216.781.7808*	*Rosenberger@pbworld.com*
Matt Orenchuk	*Parsons Brinckerhoff*	*216.781.7896*	*Orenchuk@pbworld.com*
Caroline Nardi	*Parsons Brinckerhoff*	*216.781.7891*	*Nardi@pbworld.com*
Nancy Lyon Stadler	*Baker*	*216.776.6814*	*nlyonstadler@mbakercorp.com*

1. Background

Formal public meetings were held in each of the three counties that are included in the Westshore Corridor Transit Study project area. In addition, daytime public outreach events were held at other locations within each county on the morning and afternoon of their respective public meetings. Daytime events were held at the following locations:

County	Morning Outreach	Afternoon Outreach
Cuyahoga	Westlake Park-N-Ride	Crocker Park
Lorain	Lorain County Community College	Midway Mall
Erie	Downtown Erie County Building	Sandusky Mall

2. Opening Remarks and Introductions

Commissioner Blair opened each meeting with welcoming remarks and a brief overview of the project, its history and development, and the purpose of this project. Commissioner Bill Monaghan also gave welcoming remarks at the Erie County meeting. Next, Richard Enty, the Lorain County Transit Director, introduced the project team and members of the Task Force present at each meeting. He then introduced Tim Rosenberger, the project manager, who gave a presentation (included following the meeting minutes) and answered questions about the project. The project website is www.ridewestshore.com with a link to the Facebook page.

These meeting minutes represent the understanding of the issues discussed by the writer. Should you have any comments or revisions, please contact the writer within 5 days of receipt.

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3. Questions

Cuyahoga County Public Meeting (September 14, 2010)
Approximately 20 attendees, in total

Q: Regarding improvement options, the presentation did not review new rail rapid transit.

A: In developing the alternatives, we start with a blank slate but some alternatives drop off fairly quickly based on how they fit the corridor and how they address the issues. The 60 mile corridor has a mix of densities that are better suited to commuter rail (or bus that mimics commuter rail type service) than the frequent stops that characterize rail rapid transit. The existing Red Line provides service as far west as the Cleveland-Hopkins Airport and we are looking at connections that could provide connections to the Red Line.

Q: Is there a possibility of a new rapid to Rocky River?

A: That service would be slow for the length of the corridor. There could be a trolley line from Westgate Transit Center to Clifton. There are 30 grade crossings between W.110th Street and Rocky River so it would be extremely difficult to run frequent service through this area; it would require cutting Lakewood in half for periods of time with frequent rail services.

Q: What about elevated rail line or depressed streets? Is grade separation an option?

A: This would likely be cost-prohibitive. There would be property impacts throughout the corridor (would have to take out housing in Lakewood) and building elevated rail is very expensive.

Q: Rail is more appealing to people than bus. What is the difference between heavy rail, light rail, rapid transit? Can they be mixed?

A: Very difficult to mix types of rail service because it is not cost effective. The Red Line has specific electrification requirements, vertical and horizontal clearance issues, and catenary and propulsion requirements. In addition, the Red Line vehicles do not meet Federal Railroad Administration (FRA) crash safety requirements and there are speed issues. Red Line vehicles are not built to take people 60 miles; they are not comfortable and they are not practical. Diesel Motor Units (DMU) are diesel-powered light rail cars. They would be a more practical solution. They meet FRA crash safety standards for passenger rail vehicles that mix with freight rail on the same tracks. There are rail car manufacturers that make vehicles that will work. There will be coordination challenges with movement of freight rail on the tracks. Freight volumes are down but there are still customers

Q: The Ford and CEI plants are located east of Vermilion. A rail freight line comes to the south. Can the rail traffic be diverted to Elyria then elsewhere, east to west, diverting the freight off line then build grade-separated crossings?

A: This could be a consideration. There is not extensive existing freight traffic, but we are unlikely to get a commitment from the freight users by this December. Relocating the freight to other lines would gain support from Rocky River and other communities along the rail lines. We will incorporate this into the alternatives analysis.

Q: Is noise an issue along the corridor? What is the possibility of installing quad gates to avoid the train horn sounding requirements? Is more train traffic required to justify quad gates?

A: Were pursuing this alternative, but we need to stay under $250 million for the Small Starts funding criteria and given the cost of quad gates, the project likely cannot support that cost.

Q: Is the amount of freight rail traffic going through Lorain still an issue per the agreement? Would commuter rail be counted against the limit to the number of trains that can use those tracks?

A: The number of freight trains using the tracks is lower now. According to Richard Enty, commuter trains would not be counted toward the limit of trains going thru the community. Additionally, that agreement was in place for 10 years and the 10 year period has passed.

Q: Has there been any information from Norfolk-Southern on the Heartland Corridor and how this project might fit?

A: We have not yet formally spoken with Norfolk-Southern.

Q: Based on the presentation, Federal funds will be sought for the Westshore Corridor project. Is this required? It is contrary to the way of thinking from a couple years ago.

A: Self-funding of this project has been put on the back-burner for now. It will cost a lot of money to do a good job. Rail service along the corridor is easy from the west to W.110th Street. The connection from there to downtown is challenging; the two NS lines need to be connected. Richard commented that major corporations in other cities like to build these projects and they bring financing (they loan the money and will run the project with the expectation that payback would occur through a means such as a local tax that is implemented to provide funding).

Q: Would this project facilitate rail travel to/from the airport?

A: Yes. We would try to locate a station at Cudell (W.98th St) for transfer to the Red Line.

Q: Please explain the project process.

A: The project will be led by the Task Force, the Technical Committee and the consultant team. The PB/Baker team will complete the technical analysis with help from LCT, RTA, ODOT, NOACA and other Technical Committee members. The final decision will be made by Lorain County Board of Commissioners, Erie County, NOACA and the Task Force.

Q: Is there any coordination between this project and the State's 3C rail project (passenger rail services between Cleveland-Columbus-Cincinnati)?

A: Yes. PB is the lead consultant on both projects. The 3C rail would interface with the local systems at Puritas Station and Downtown Cleveland. Commuter options would preferably get to Downtown Cleveland. The connection would be to the Lakefront Station (with connection via the Waterfront Line) rather than Tower City because of technical and political constraints. Ideally, the Westshore would connect to the intermodal hub station that is created for the 3C rail terminus. If the service does not go downtown, it will likely terminate at RTA's Cudell Station with transfer services to the airport and downtown via the Red Line.

Q: We are sitting here today because RTA is not a regional transit service; they do not provide public transit beyond Cuyahoga County. But there has been a big investment in the highway system, specifically adding a lane to I-90, and its expansion is resulting in sprawl. The first alternative is to do nothing. The alternative should be condemned because there is no transit service that extends beyond the County line. This project needs to support the concept of a true regional transit authority. This lack of service damages the economic competitiveness of the region.

A: (Beth Long, GCRTA) There are two issues at hand: 1) The funding is not in place to expand transit service. RTA's service has been cut because of the funding challenges. The solution to this problem lies in greater support of transit by the state. (Ohio is one of the poorest supporters of transit in the nation.) If the state were to change the legislation from "highway" funding to "transportation" funding, there would be better potential to increase transit funding. 2) Ohio currently has a law in place that prohibits transit service beyond County lines. That law needs to be changed; it can be changed by the state legislature.

Q: It is important to share this information (refers to previous question and response). Will this project include an educational component to help people to understand the issues?

A: We will work with the Task Force to help identify dedicated funding sources for this project in Lorain and Erie Counties.

Q: Will the value of the land be explored?

A: Tax increment financing can be explored. As part of an alternatives analysis, the financial analysis comes first where financial gaps are identified and ways to fill those gaps are developed.

Q: In addition to the express bus option, could a hybrid option be considered? For example, a train could run during rush hour with regular bus service during off-peak hours.

Yes, a hybrid option could be done. In fact, providing that type of service may be a way to grow the program, starting with bus service all the way to the west and transferring to rail, as rail can be supported, ultimately growing the rail service to the west. This will help demonstrate ridership and buses will be less costly as the service is initially implemented.

Q: What is the process to find someone to run a transit operation like this?

A: There are many was to resolve running a transit service and it is done differently all over country. Sometimes separate agency is set up to run it, sometimes state runs it, and sometimes it could be picked up by an existing agency. The NEORail study identifies some options. Regional service could start with existing transit agencies (i.e., Akron, Laketran, PARTA, LCT) running buses into Cleveland to build demand. A company could run the service on contract buses. A host railroad could run the service. Ultimately, someone has to step up and take the lead.

Q: Are there new rail technologies projected over the next 2 decades that would justify holding off on development of rail option for this project?

A: No. This process can take 7-12 years (optimistically) to implement, with a number of steps that could each take years. Additionally, costs can be very high when you're on cutting edge of technology. RTA's development of the BRT (Healthline) vehicles is good example of being ahead of the curve – they got their money back because of how they structured the plan, but it was still an expensive endeavor, though it was a very quick process from RTA

Comment from Maribeth Feke (RTA): New buses are very fuel efficient, sustainable and clean (hybrid diesel/electric), but we still have to buy new buses which is expensive. Up front, rail is costly but pays off in the long term if there is consistent volume. Everyone was pushing BRT when gas was still low and the government takes a while to change. However this administration has made these projects more likely by putting emphasis on how they can positively change land use.

Q: At the beginning of this process there was talk about buying 'Chicago Car' for a dollar. What is stopping us from running Lorain to Cudell with this car?

A: Railroad agreement is necessary. Stations will be required along the corridor. Transfers/loadings at Cudell need to be accommodated (overhead platform, walkways, yard to park trains, staff to repair trains). Money, operating concerns and permissions; the infrastructure is relatively easy. Railroad cooperation will be key and it isn't possible to guess at the railroad's willingness to agree. Typically, railroads will not say know, but they may provide a list of requirements that may cost millions of dollars before they will comply with your request. For example, they may require maintenance of a certain level of capacity which could result in extra infrastructure that could be an extra rail line along the entire corridor. Railroads are privately owned; they control the decision-making and government has no say aside from regulations.

Q: What is the expectation of Norfolk-Southern's cooperation?

A: We really cannot venture a guess at this point. They rarely say no, but they would have requirements. In the past, NS has said that they are interested in this project but they will need to maintain their freight movement capacity and if it is a busy line that could mean infrastructure impacts. We do not have those answers yet.

Q: Providing access to the airport would be a good way to build demand for this project. What else can we do to build demand?

A: Work with local and state officials to increase funding for transportation and to encourage changes in land use. You need to come to public meetings because the projects are developed based on your comments and showing support helps the projects move forward. Spread the word to family/friends and encourage people to speak up.

Comment from audience: John Kasich is against any type of rail transit. If he is elected then this project, along with 3C and others, will be cut.

Lorain County Public Meeting (September 15, 2010)

Approximately 35 attendees, in total

Comment: Space for wheelchairs on trains is needed.

Q: What happened over the past 13 years when the Westshore Rail got started and now?

A: The NEORail Study was completed (197-2001). There was a gap in time then the Westshore Alliance and Westshore Commuter Rail Task Force were formed to move the project forward, focusing on raising money, motivation and support for the project. Lorain County Community Alliance (LCCA) is supporting the project and Congresswoman Betty Sutton obtained an earmark. Momentum for the project has been building.

Can we reuse the $2 million NEORail study be adjusted and not spend more money?

A: Basically that is what is happening. We are taking that study to the next level of detail.

Q: Any thoughts on extending the rail line into Toledo and Michigan?

That is not a part of this study. This study is focusing on commuter rail, and Sandusky is pretty far (60 mile) for commuter rail service to/from Cleveland. The Midwest Regional Rail Initiative and the Ohio Hub plan to provide regional links through Ohio, linking Chicago to the East Coast. Those initiatives, supported by the Ohio Rail Development Commission (ORDC), are exploring inter-city rail with few, if any, stops between cities. This project envisions commuter rail service with two, three or four stops within each city.

Q: What is the average speed? It sounds like it will be slow service with frequent stops. Travel time will affect rider choice between driving and bus/rail transit.

A: If the corridor can be configured to allow trains to pass, stop/skip service could be provided where one train stops at all stations and another stops at only a few resulting in express service.

Comment: We need to differentiate high speed rail and need to get with developers to support transit. We (the state) have $400m for high speed rail. There is nobody in the US with experience in building high speed rail. We need to get the Chinese to come educate us, but we want to learn from them; we don't want them to come in, build it, then leave.

Q: How many attended the meeting in Cuyahoga County yesterday?

A: There were about 20 people, including the project team.

Q: Can the corridors be built in phases?

A: Yes.

Q: Community benefits need to be kept in mind. Economic conditions that were present when NEORail was done are not the same today. There is more interest in redevelopment rather than greenfield development and that may lead to different conclusions regarding commuting patterns, land use, and employment. Will those projections be accurate?

A: We need to work with NOACA's travel demand model with its assumptions; it is what we have to use. We will look at the travel distribution and will make appropriate assumptions. Regarding residency, there is continuing movement out of Cuyahoga County into Lorain County. To help this project, the communities need to adopt necessary land use laws/zoning (i.e., transit overlay districts) to support transit-oriented development.

Q: In areas with successful rail transit, there seems to be a progression of service. Lorain County is starting at zero.

A: We know there is a demand for service based on what we saw at the public outreach event at the Westlake Park-and-Ride where about half the riders were from Lorain County. The data shows that there is potential ridership. We know the market will support a number of buses per day. Bus service can be used to introduce transit service and demonstrate that there is a good market, with bus service in place until commuter rail can be built. Progression would be a good idea.

Q: Lack of dedicated funding in Lorain County is a problem and we can't go forward without it. What are we going to do? Are they close to a solution?

A: (input from various members of the audience) Can we ask outsiders to invest, like in California? Our company produces rail cars that can run on existing rail tracks. Funding is a fundamental question; the NEORail study showed many ideas and it seems that the 1/8% sales tax increase is logical. We need to build consensus and support focusing on the economic development opportunities that will come with this program. Those that will benefit should contribute. We also need to continue to run and maintain buses. We need to identify a range of alternatives, figure out the costs, then build the constituency. We should look at other states, such as California, take advantage of what they have learned and look at their best practices.

Comment: (Tim Rosenberger) We have TOD across the river, in downtown Lorain and at Crocker Park. Jet Express was established in part because of the ridership potential that is also attractive to rail. A lot has happened in the past 10 years (since the NEORail study) and not all of it is bad. Sprawl is bad, but there is a sizeable population that is interested in transit and it is not just the poor. We need to target those populations. Funding is the key; it is a political issue and leaders need to emerge.

Comment: We need to tap into LCCC students; they are interested in new/green/sustainable practices and would support this project. Sustainability can generate a lot of enthusiasm for public transit.

Q? Why rail instead of bus? Coming from Oberlin, I think that we need to spend some time addressing the lack of bus service in the County. Bus service is badly needed (college students, etc.).

A: There are studies that show rail is more attractive to riders than bus. There are some people who will choose to ride rail that will not ride bus. Two examples: Columbus has bus service and is experiencing decreasing ridership. Sacramento has rail and is experiencing a growth in ridership.

Q: How does that translate to this area?

A: This is a metro area. Providing transit that connects to the rail line is part of the challenge with the transportation system. The Lorain County Transit system is peripherally involved. For this

project to work, there needs to be better bus service and connectivity in Lorain and Erie Counties. Bus service is easier and cheaper to implement, initially, but rail can move a lot of people for less if there is sufficient ridership. Implementing rail requires an educational process – people need to know the facts, particularly with respect to the costs, economic benefits, road subsidies, etc.

Comment: Wheels to steel – it is easy to cancel bus service, but once rail service is in place, it cannot be cut as easily. There is money in rail. It brings economic development. The presence of rail generates business as well related services.

Comment: We don't want to ignore bus in favor of rail. Bus service can be implemented sooner and for less money. I'm glad we are looking at alternatives that consider both bus and rail. If we have nothing to start with, bus is a good start.

Response: We will be considering bus alternatives, rail alternatives, and alternatives that use both bus and rail.

Q: How far off are electric buses?

A: Hybrids are out there today; total electric buses are on the horizon but may not work for this corridor because of the length of the corridor. Hybrid buses are approximately twice the cost of standard buses.

Comment: Highways are a subsidized cost. That must also be considered.

Response: The difference is that DOTs maintain roads and transit agencies maintain rail. With buses, the transit agency does not bear the cost of road maintenance but they (typically) do have to maintain the rails.

Q: What are security requirements? Will it be like the airport?

A: No. You are able to simply board a transit vehicle.

Q: As a bus traveler, you want to get to your destination quickly and you may need supplemental transportation to get to the final destination. Is this study looking into that?

A: This study has to assume that the connections to the stations will be in place.

Comment: There are a lot of people supporting this effort. It is a hot topic at community events.

Response: We have been at outreach events at the Westlake Park-and-Ride, Crocker Park, LCCC and Midway Mall and the people we have spoken with have been supportive.

Q: Is there a study that shows (rail vs. bus) for people who own cars?

A: PB is not aware of any such study

Comment: Attendees want access to reports and studies, the old and the new.

Response: The information will be posted on the project website (www.ridewestshore.com). This will include today's presentation and the NEORail study.

Comment: We need to begin to campaign to increase the state sales tax to fund transit. There has been a lot of political will against this, supported by the petroleum industry. In the 1970s the sales tax was defeated. I think this time it may change, but we need to prepare the electorate.

Erie County Public Meeting (September 16, 2010)

Approximately 35 attendees, in total

Erie County businesses and supporters contributed $30K to fund this study.

Q: What's going to be available at the December public meetings?

A: We will show alternatives, the results of the analysis, the selected alternative(s), and the study recommendations. We will hold meetings in every county with informal outreach and public meetings as we have done with this round of meetings. The locations and dates will be posted on the project website.

Q: How much depth do you look into demand generators, their types and quantity? How do you quantify that?

A: We will look at special generators (like Cedar Point and Kalahari). They are complex and require looking at the average day, the average summer day, and the average summer Saturday. Quantification of special generators is the most complex technical issue. We will need to justify our analysis to FTA, which tends to underestimate or discount special generator ridership. FTA is used to thinking about commuter ridership and special generators are different.

Comment: (Commissioner Monaghan) Erie County has $1.1 billion in annual tourist dollars (2009). There are a lot of people coming and going, this is high when considered in context of the County economy. Their destination isn't Cleveland, it is the airport – that is where demand is. These travelers want a point to point connection from Erie to airport. One way cab fare is $120 so there is a market. There are an estimated 1500 round trip seats per week (3000 trips/week) to/from the Cleveland airport.

Response: We may want to consider Triskett Station (off I-90) as an end point for the Westshore commuter rail. From there, travelers can get on the Red Line to the airport. But travelers prefer to not change modes. Additionally, the NS line ties in at RTA's Cudell Station which connects to the Red Line that goes to the airport. If there is demand, don't wait for a train. Get a bus running to demonstrate ridership. This will help to support establishing rail service, and rail can be by either a public or private supplier. Commuter rail serves more than low/moderate income travelers. There is also a demand for others.

Q: I would like more information on the land use/zoning issue. What ordinances do you need to pass or change?

A: Land use must allow higher FAR (floor area ratio) and density and support mixed use development (not strict separation by land use type), structured parking instead of big seas of parking lots, more sidewalks on/to the streets (with connectivity between developments); PB can provide examples of specific zoning codes from other places in the country.

Q: If republicans take over how will it affect chances of rail?

A: We don't know what will happen for this project. Kasich spoke out against the 3C rail project but hasn't spoken specifically about Westshore Corridor. Republicans on a national level seem to have other fish to fry. The new transportation bill on horizon may not be in place for a few years and at this point, it is hard to say what will and will not happen. But the nation has built transit projects under Republican administrations before so it can happen

Q: When you are talking about 10s (or hundreds) of millions to build and several million to operate, what is the local match requirement? Will Lorain County come up with most of money for this?

A: Half of the funding could come from the federal government and there is a 50% local match with that. There would have to be some allocation by each of the three counties, and the specific methods have not yet been determined. The three counties would not have to pay for it all if federal funding is obtained.

Q: If Sandusky is included with the train, not just an extension of the service by bus, , will Erie County have to put up serious money for it? How have they done this in other places?

A: Yes, it will cost millions of dollars though there is already an Amtrak station existing. The analysis will look at updating existing facilities, but there still needs to be financial support at the local level. Erie County has the opportunity for tourist access. PB will provide laundry list of taxes that could generate significant funding to support the project (i.e., bed tax, auto tax), Congestion Mitigation Air Quality (CMAQ) can fund some of the operating costs. These sources could be used to match federal funds (half will come from federal government). Regarding the funding split between the three counties, that is something that will have to be worked out.

Comment: (Commissioner Monaghan) This project is in its infancy and there is a lot to consider. Opportunities for economic development in the area should offset costs. Much of the infrastructure is already in place but the funding and potential tax issue is still in infancy stage. (Per Tim Rosenberger) There is always a positive return with respect to economic development associated in an investment in rail transit.

Q: Preferred alternative to be presented in December, when will the train be in service?

A: Each project is different and the length of time depends upon the project and its specific hurdles. The process takes about 7 years to complete the study, engineering, and FTA approvals; with construction, it takes an average of 12 years to put a system in place

Comment: (Tim Rosenberger) There will be some new rail and connections that will need to be made to connect to Lakefront Station (Cleveland) and to Black River Landing. We also need to work with NS and get their cooperation. They are interested in economic development but they may not want to own the line. We will also be working with the Federal Railroad Administration (FRA). NS and their requirements are the biggest deciding factor. NS could be the operator and that could speed the process.

Comment: (Richard Enty) We need to have the railroads agree and approve, as well as FRA. We need to ask the railway what they need and you have to build it because they own everything

4. Next Steps

Meeting participants were asked to complete a survey to provide their ideas and feedback to the project team. They were asked to share the surveys (also available on-line) with their friends, family and colleagues who may be interested in the project. The on-line survey and the project website are listed below and the project is also on the Westshore Commuter Rail Task Force's Facebook site.

www.surveymonkey.com/wctp
www.ridewestshore.com

The planned completion date of alternatives analysis is Thanksgiving. The consultant team will work with the Task Force on the alternatives analysis and evaluation process that will lead to the development of the locally preferred alternative. Subsequent public meetings are planned for early December where the analysis results and the locally preferred alternative will be presented to the public for their review, understanding and feedback.

Public Meeting #1 Minutes
Westshore Corridor Transportation Study

Meeting Photos – Cuyahoga County

These meeting minutes represent the understanding of the issues discussed by the writer. Should you have any comments or revisions, please contact the writer within 5 days of receipt.

Public Meeting #1 Minutes
Westshore Corridor Transportation Study

Meeting Photos – Lorain County

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Public Meeting #1 Minutes
Westshore Corridor Transportation Study

Meeting Photos – Erie County

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Public Meeting Presentation

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New Starts Process

- New Starts is a competitive grant process conducted by the FTA
- Projects are given a rating based on a number of criteria
  - Mobility Improvements
  - Cost Effectiveness
  - Land Use Changes
  - Environmental Benefits
- Criteria may change with new transportation bill

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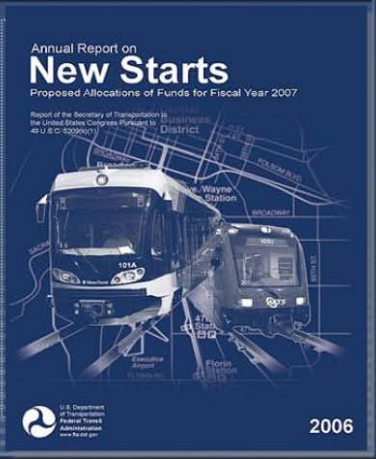
The FTA's New Starts Program

- Federal funding program for major mass transit investments
- Small Starts
  - Total Cost up to $250 million
  - $75 million Federal
- Very Small Starts
  - Total Cost up to $50 million
  - Up to $3 million per mile



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FTA New Starts Process
• Project development steps include:
– Alternatives Analysis
– Selection of Locally Preferred Alternative
– Environmental Assessment/EIS
– Preliminary Engineering
– Review of Agency Financial Health
– Cost Effectiveness Rating
– Full Funding Grant Agreement
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Alternatives Analysis Process
1. Goals and Objectives
2. Purpose and Need Statement
3. Existing Conditions Document
4. Initial Screening of Alternatives Document
5. Detailed Screening of Alternatives Document
6. Selection of Preferred Alternative Document
PARSONS BRINCKERHOFF


New Starts Evaluation Criteria
• Mobility Improvements
• Cost-Effectiveness
• Land Use Benefits
• Economic Development
• Operating Efficiencies
• Environmental Benefits
• "Livability"
PB PARSONS BRINCKERHOFF


Why is this the right time?
• The transportation needs in the corridor still exist
– NEORail findings
• Station development and redevelopment opportunities
• Increased public and government interest in transit
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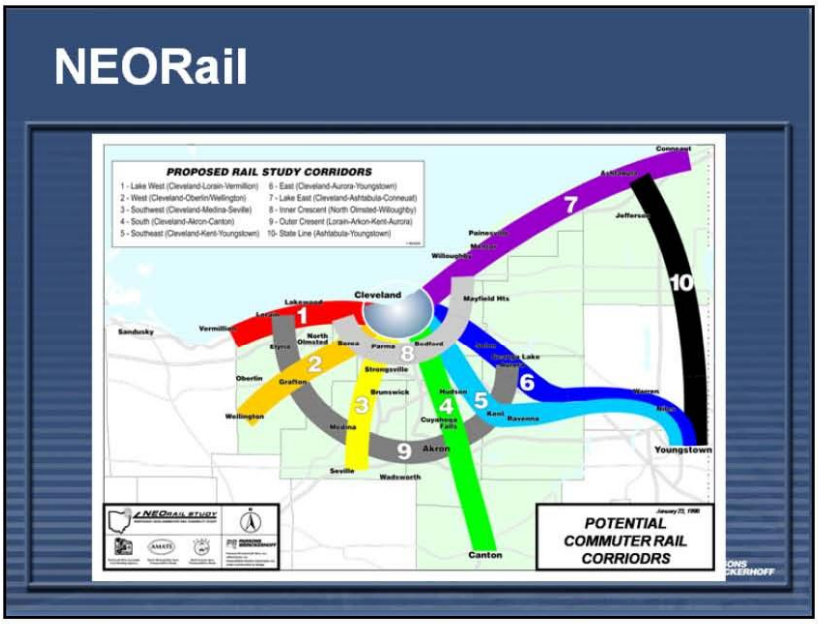
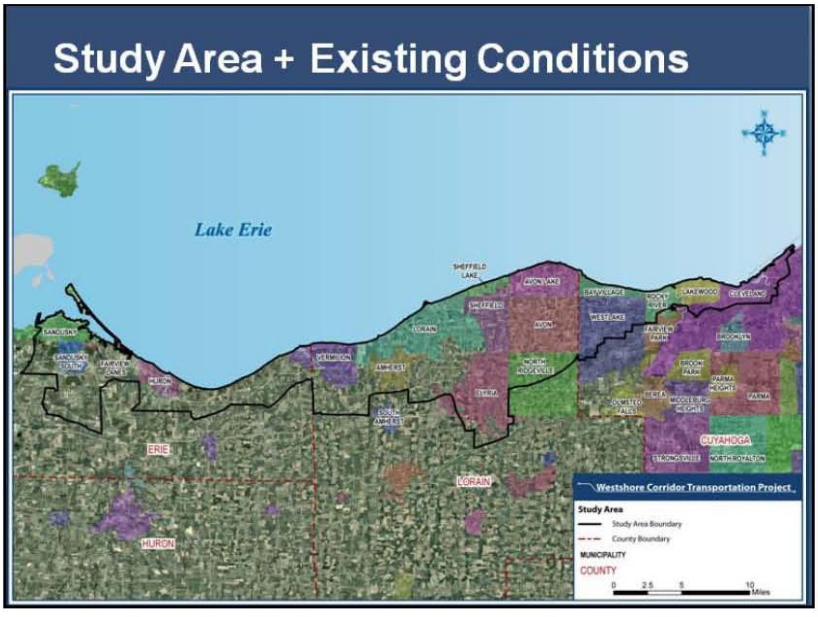

NEORail
PROPOSED RAIL STUDY CORRIDORS
1 - Lake West (Cleveland-Lorain-Vermilion)
2 - West (Cleveland-Oberlin/Wellington)
3 - Southwest (Cleveland-Medina-Seville)
4 - South (Cleveland-Akron-Canton)
5 - Southeast (Cleveland-Kent-Youngstown)
6 - East (Cleveland-Aurora-Youngstown)
7 - Lake East (Cleveland-Ashtabula-Conneaut)
8 - Inner Crescent (North Olmsted-Willoughby)
9 - Outer Crescent (Lorain-Arkon-Kent-Aurora)
10- State Line (Ashtabula-Youngstown)
Cleveland
Akron
Youngstown
Canton
POTENTIAL COMMUTER RAIL CORRIODRS


Regional Goals
NEORAIL STUDY PHASE II
Promote concentrated development
Encourage land use that preserves farmlands and rural areas, minimizing the need for additional infrastructure and strengthening local communities.
Support urban core areas
Encourage investment in urban core areas.
Expand access to jobs
Offer more transportation opportunities, especially for those who depend on transit.
Provide transportation choices
Give people greater transportation choice by making transit, commuter train, bicycling and pedestrian travel more viable.
PARSONS BRINCKERHOFF



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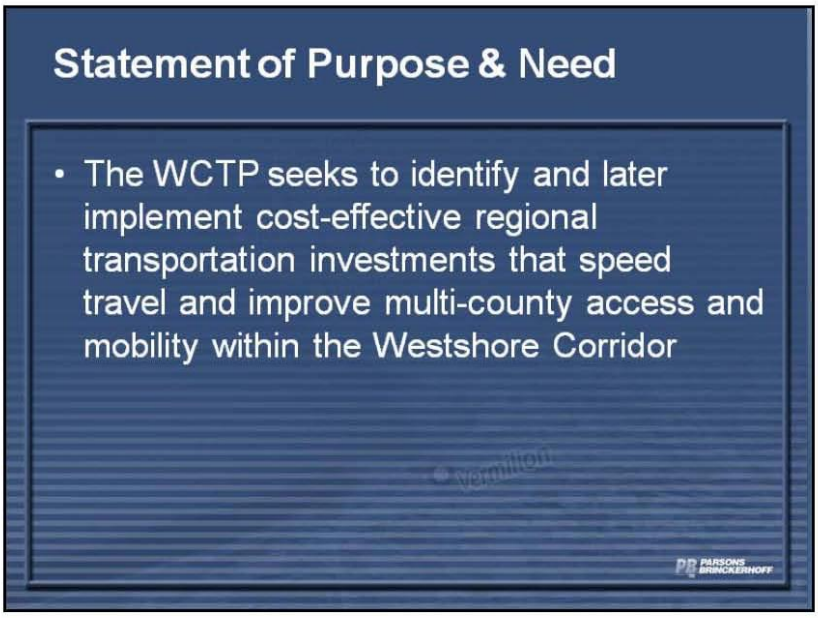
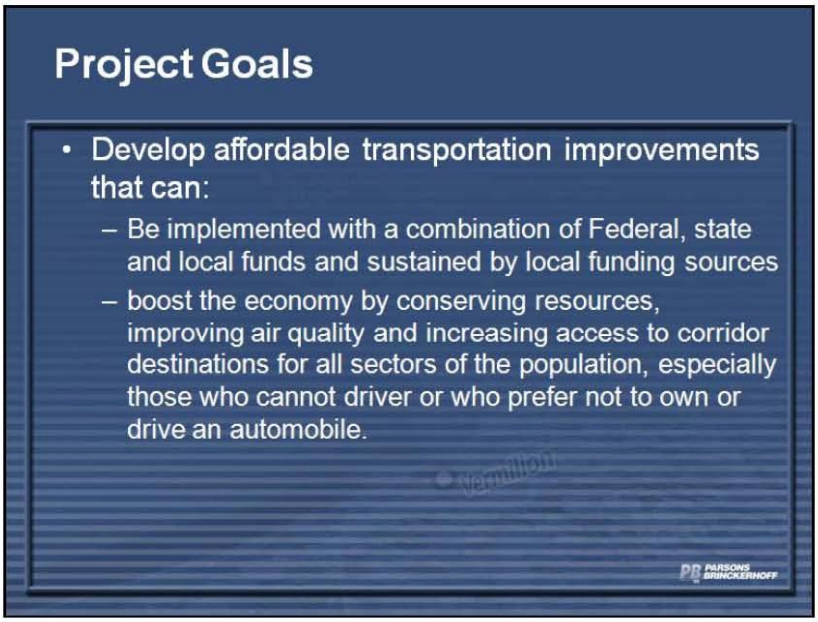
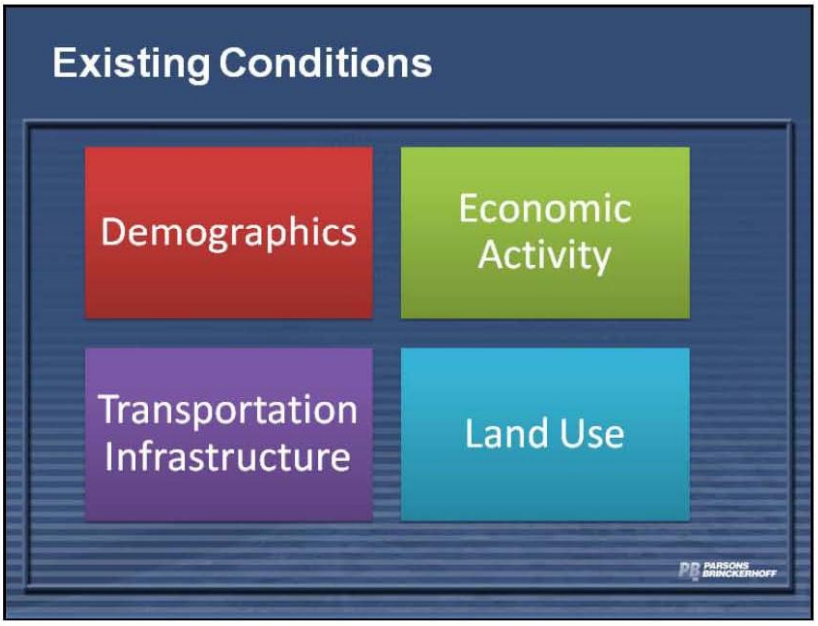

Statement of Purpose & Need
• The WCTP seeks to identify and later implement cost-effective regional transportation investments that speed travel and improve multi-county access and mobility within the Westshore Corridor
PARSONS BRINCKERHOFF


Project Goals
• Develop affordable transportation improvements that can:
– Serve unmet demand for longer-distance inter-county public transit options for Westshore Corridor residents and visitors
– Encourage sustainable, transit-friendly development and redevelopment in support of revitalizing core urban areas within the corridor including Lorain, Sandusky, Vermilion, Lakewood and Cleveland
PARSONS BRINCKERHOFF





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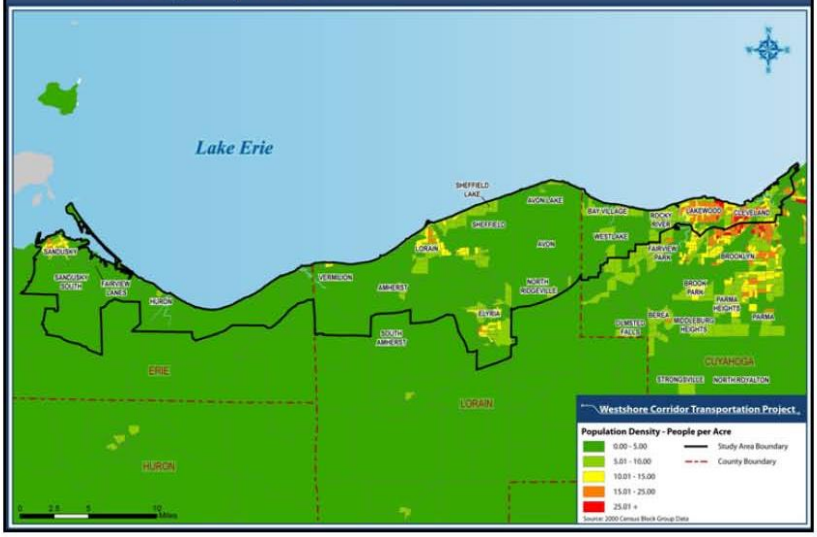
Existing Conditions

- Corridor Population: 590,000
- Corridor Employment: 250,000

PB PARSONS BRINCKERHOFF

Demographics



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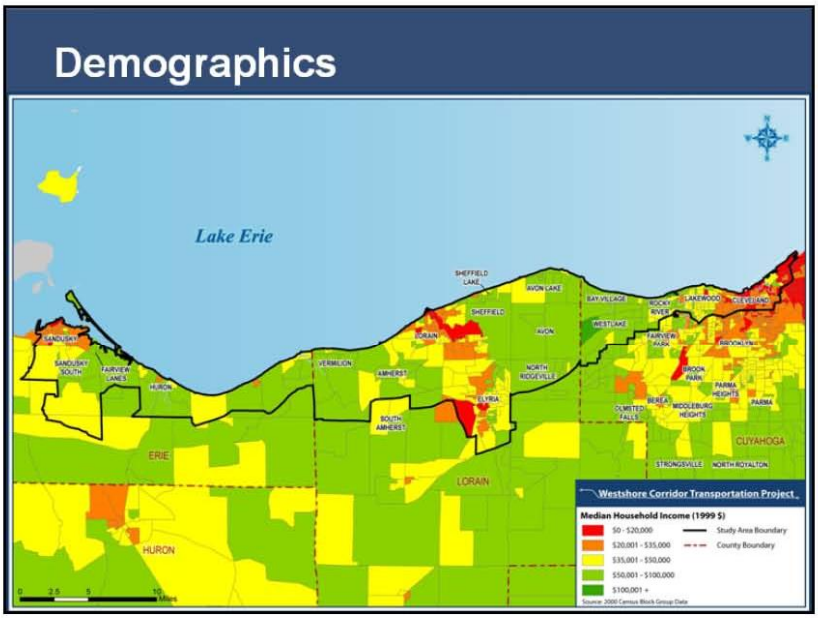

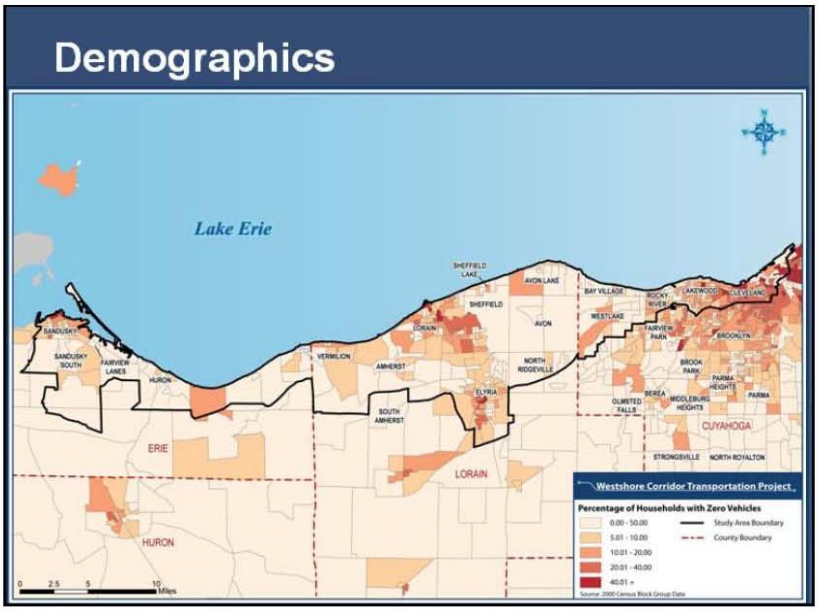

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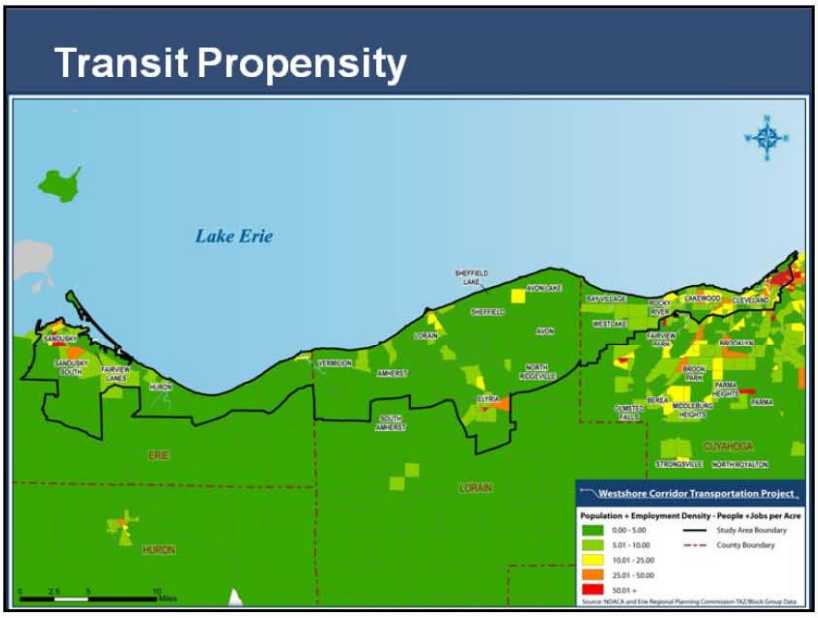

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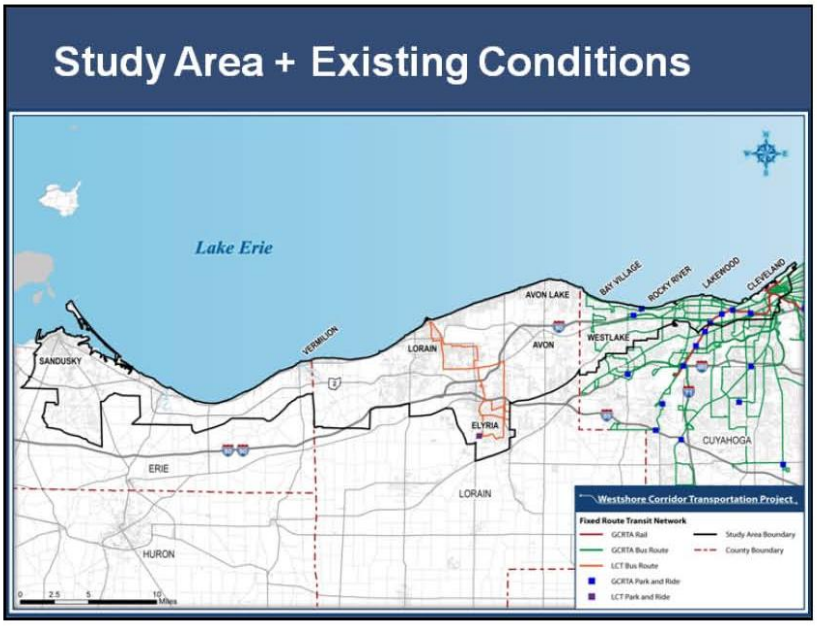

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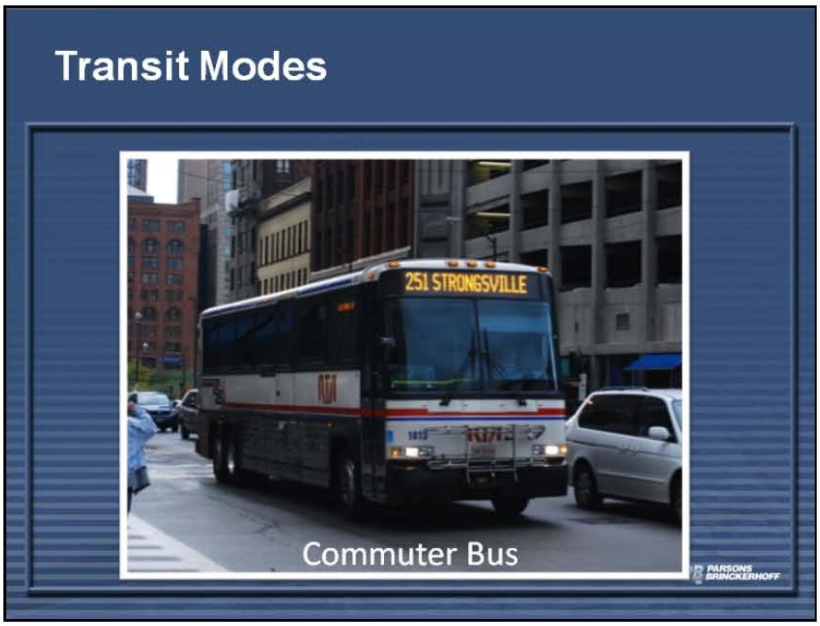
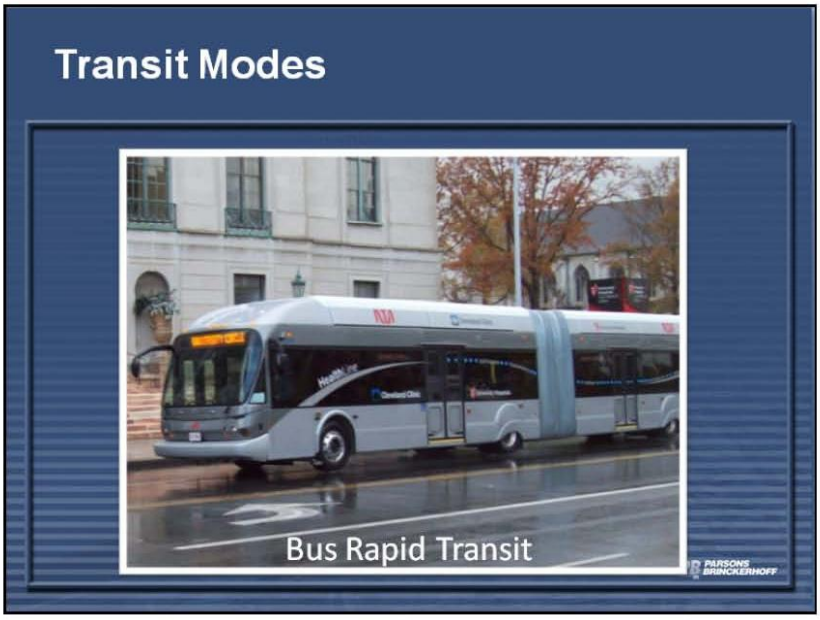
Development of Alternatives

- Alternative = Transit Mode(s) + Alignment(s)
- Designed to address the purpose & need, fulfill the project goals
- Must include a "No-Build" and "Low Cost" Alternative
- Alternatives are "developed' rather than "selected"
- Locally preferred alternative could include several modes operating on several alignments
- Locally preferred alternative could be phased in over several phases

Transit Modes





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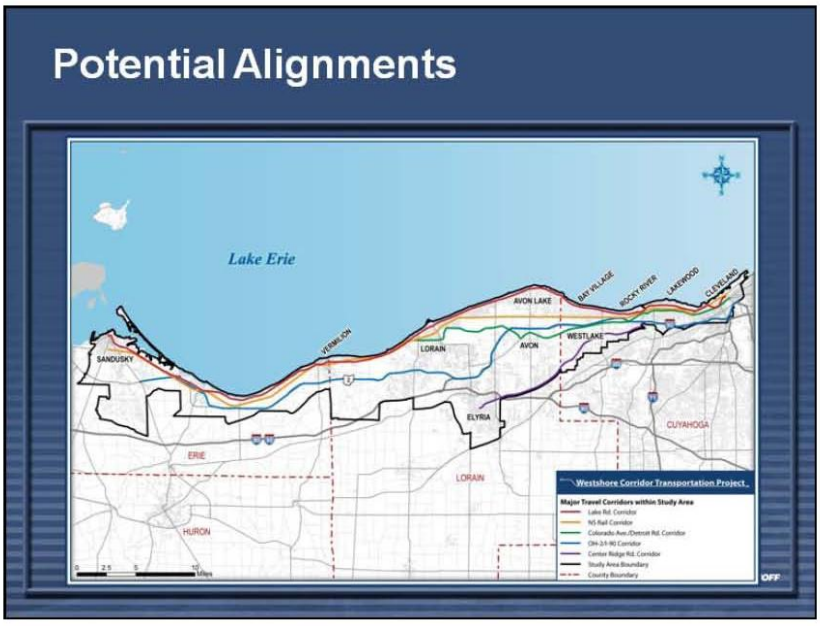

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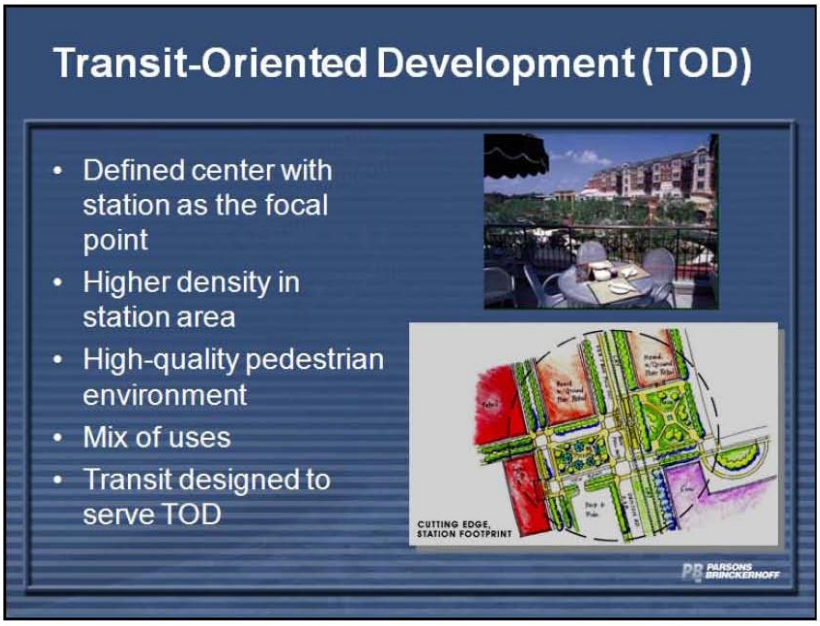

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Schedule

West Shore Alternatives Analysis Schedule	1-Nov	2-Nov	3-Nov	4-Nov	5-Nov	8-Nov	9-Nov	10-Nov	11-Nov	12-Nov	15-Nov	16-Nov	17-Nov	18-Nov	19-Nov	22-Nov	23-Nov	24-Nov	25-Nov	26-Nov	29-Nov	30-Nov	1-Dec	2-Dec	3-Dec
Technical and Policy Committee - Kickoff Mtg																									
Identify Goals and Objectives																									
Purpose and Need Statement																									
Public Meeting Set 1																									
Cuyahoga County Meeting																									
Lorain County Meeting																									
Erie County Meeting																									
Existing Conditions Document																									
Technical Committee - Review Purpose and Need																									
Initial Screening of Alternatives																									
Technical Committee - Review Initial Alternatives																									
Detailed Screening of Alternatives																									
Technical Committee - Selection of Preferred Alternative																									
Selection of Preferred Alternative																									
Final Report																									
Public Meeting Set 2																									
Cuyahoga County Meeting																									
Lorain County Meeting																									
Erie County Meeting																									

VETERANS DAY

THANKSGIVING

HOLIDAY
WEEKEND
PB WORK
PUBLIC MEETINGS
TECHNICAL / POLICY COMMITTEE

PB PARSONS BRINCKERHOFF

Next Public Meetings

- Late November, Early December
- Will Present Alternatives and Analysis Results

PB PARSONS BRINCKERHOFF


Thank You!
• Contact information:
Tim Rosenberger
PB Cleveland
614 W. Superior Avenue, Suite 400
Cleveland, Ohio 44113
Phone (216) 781-7888
rosenberger@pbworld.com
For more information, see our website www.ridewestshore.com
Take our online survey about transportation in the corridor
http://www.surveymonkey.com/s/wctp
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Public Meeting #1 Minutes
Westshore Corridor Transportation Study

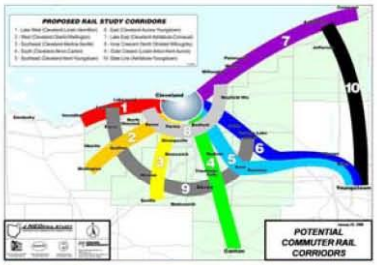
Public Meeting Display Boards

Westshore Corridor Transportation Project

NEORail

NOACA sponsored the Northern Ohio Commuter Rail Feasibility Study (NEORail) in two phases between 1997 and 2001. The study sought to determine whether the region could support commuter rail, identify those corridors with the best potential as commuter rail lines, and quantify the costs and benefits of a commuter rail network in northeastern Ohio.

The study began with more than 40 possible rail alignments, individually and in combination, that could potentially provide commuter rail service in the region. While most of these corridors ended in downtown Cleveland, several alignments connected other areas or would operate circumferentially around Cleveland, connecting with other lines radiating out from the city. The initial phase of the study reduced the number of corridors under consideration to ten corridors that had the highest potential to be a part of a commuter rail network in the Cleveland region.



NEORail began with ten potential commuter rail corridors. Seven of these corridors ended in downtown Cleveland, while three were "circumferential" lines that began and ended outside downtown. The three "circumferential" lines ultimately were eliminated as non-feasible.

The goals of the NEORail projects were much the same as our goals today in the Westshore Corridor—promote transit-oriented development, support urban core areas, expand access to jobs, and improve transportation choices.

The combination of Corridor 1 (Lorain-Cleveland via the Norfolk Southern line through the Lake West Suburbs) and Corridor 6 (Solon-Cleveland via the Randall Secondary) were, in combination, deemed the most feasible and most potentially cost effective of the alignments under consideration.

The second phase of the study conducted a more detailed analysis of the ten remaining corridors. The study prepared detailed estimates of the capital costs of improving the various freight rail lines to accommodate commuter rail service. These improvements often included additional track and other new infrastructure to allow the freight railroads that own and operate the lines to continue their current operations unhindered while supporting the addition of commuter rail trains. Operating costs were also estimated.

Ultimately, seven lines were deemed potentially feasible for future service. The Lorain-Cleveland line operating primarily on the Norfolk Southern alignment through Cleveland's west side and the Lake West Suburbs (Lakewood, Rocky River, Bay Village and Westlake), together with the line between Cleveland and Solon, were deemed to be "marginally feasible" and to have the highest potential benefit-to-cost of the lines examined. Both alignments were recommended as the first tier of service to be implemented.

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Westshore Corridor Transportation Project

The Westshore Corridor Transportation Project

Is the outcome of more than seven years of efforts by local citizens and political leaders in the Westshore Corridor to continue the development of transportation improvements in the corridor.

The study is primarily funded by a grant from the Federal Transit Administration (FTA) and is sponsored by Lorain County. The West Shore Commuter Rail Task Force, the Northeastern Ohio Areawide Coordinating Agency (NOACA), Greater Cleveland Regional Transit Authority (RTA), Ohio Department of Transportation (ODOT), and Erie County are also important partners in the study.

The corridor study area runs from downtown Cleveland in the east along the southern shore of Lake Erie through western Cuyahoga, Lorain, and Erie Counties to Sandusky, passing through a number of communities including Lakewood, Rocky River, Westlake, Bay Village, Avon, Avon Lake, Lorain, Elyria, Vermillion and Sandusky.

The FTA New Starts Process

The Federal Transit Administration's New Starts program governs the process by which new major investments in mass transit improvements are funded. The program seeks to ensure that Federal transit investments are efficient and effective, can be supported by the region in which they are being built, and are promoting the FTA's other goals for new transit projects. The program is competitive, meaning that projects in our region compete with those in other cities across the country for a limited supply of Federal transit development funds.

The criteria by which potential New Starts projects are evaluated include the following:

- Mobility Improvements
- Cost-Effectiveness
- Land Use Benefits
- Economic Development
- Operating Efficiencies
- Environmental Benefits

The Obama administration has added the concept of "livability"—the desire to improve quality of life, particularly in lower-income, older, urban communities, as a factor that is integrated throughout the evaluation criteria. FTA is also placing greater emphasis on the ability of the region to fund projects and to sustain existing transportation systems.

The steps to developing a new project under the New Starts process include the following:

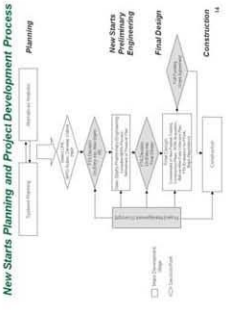
- Alternatives Analysis
- Selection of Locally Preferred Alternative
- Environmental Assessment/EIS
- Preliminary Engineering
- Review of Agency Financial Health
- Cost Effectiveness Rating
- Full Funding Grant Agreement

The Westshore Corridor Transportation Project is in the first phase in this process, the Alternatives Analysis. The full process typically takes 7-12 years.

The steps in an Alternatives Analysis typically include:

1. Goals and Objectives
2. Purpose and Need Statement
3. Existing Conditions Document
4. Initial Screening of Alternatives Document
5. Detailed Screening of Alternatives Document
6. Selection of Preferred Alternative Document
7.

New Starts Planning and Project Development Process



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Westshore Corridor Transportation Project

Westshore Corridor Transportation Project Purpose and Need, Goals and Objectives

The project purpose and need statement defines the transportation problems that the proposed project seeks to solve. The purpose and need statement that has been developed for the Westshore Corridor Transportation Corridor is as follows:

The purpose of the WCTP is to develop rail and public transit-based solutions to the transportation needs identified in the Westshore Corridor.

The need for improvements is based on:

- The lack of convenient and affordable rail and transit options for travel in this corridor, especially for inter-county movements.
- Traffic congestion on highways in the corridor, especially on I-90 at the Cleveland Innerbelt, which is the region's primary safety hot spot; traffic congestion during emergencies on I-90; and anticipated traffic during the upcoming reconstruction of the Innerbelt.
- The need to promote transit-friendly and sustainable development and redevelopment in the corridor's communities.
- The need for more cost-effective, affordable and sustainable transportation investments in the corridor.
- The need to catalyze local economic growth in the corridor by improving transportation connections and access.
- The need to promote environmentally-sound transit strategies that will reduce the unhealthy emissions from auto traffic that contribute to the Cleveland region's status as a US EPA non-attainment area for ozone and particulate matter.

The project goals will serve as a guide to the entire project. The alternatives will be developed specifically to address the purpose and need statement, and to meet the goals and objectives of the project. The evaluation criteria that will be developed to evaluate the alternatives will be based on the goals and objectives. The goals that have been identified for the Westshore Corridor project include:

- Serve unmet demand for longer distance inter-county public transit options for Westshore Corridor residents and visitors.
- Encourage sustainable, transit-friendly development and redevelopment in support of revitalizing existing areas within the corridor focusing on the older communities of Sandusky, Vermilion, Lorain, Elyria, Rocky River, Lakewood and Cleveland.
- Implement a cost-effective transportation solution with a combination of Federal, State and local funds that can be sustained by local funding sources.
- Enhance the local economy by providing improved access to corridor destinations for all sectors of the population, especially those who cannot drive or who prefer not to own or drive an automobile.
- Implement a transportation solution that promotes environmental sustainability and social and environmental justice.

Public Meeting #1 Minutes
Westshore Corridor Transportation Study

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Westshore Corridor Transportation Project

The Challenges

The two greatest challenges facing development of transportation improvements in the corridor are the potential for local funding, and the ability of the communities in the corridor to promote transit oriented development.

Local and State Funding

Assuming that a project in the corridor ultimately is funded by FTA under its New Starts process, at least half of the cost of building infrastructure and stations, and buying vehicles would be paid for out of non-Federal (state and local) funds. These funds could come from some combination of state and local government funds and private investment. In addition, the cost of operating any service would be borne entirely by local and state funds.

As transit users in the region are fully aware, both Lorain County Transit and Greater Cleveland RTA have significantly cut their services over the past several years due to decreasing local tax receipts and decreasing state funding. The State of Ohio currently provides the lowest level of funding for transit of any of our adjacent states. Raising sufficient funds to provide the local costs of the project will be among the most challenging elements of the project.

Transit-Supportive Land Use

The FTA has made the promotion of transit-supportive land use is an increasingly important element of the FTA New Starts project development process. FTA expects to have a reasonable certainty that the areas that would be served by new transit improvements will be supported by higher-density, mixed-use, walkable development that is easy to serve with public transit services.

In the past ten years, thousands of additional housing units and thousands of square feet of commercial space has been built in the corridor. Most of this development has been in the form of strip shopping centers, single-use, single-family housing developments and other forms that are difficult to serve with transit.

Controlling the growth of sprawl development and creating walkable, transit friendly centers around proposed major station/stop areas will be a major challenge for communities in the corridor. Before FTA will invest in transit improvements in the corridor, local communities will need to enact zoning changes that allow for, and actively promote, transit-oriented development.

Transit oriented development can take many forms but generally has the following characteristics:

- Defined center with station as the focal point
- Higher density in station area
- High-quality pedestrian environment (good quality sidewalks, crosswalks, landscaping, street furniture, lighting)
- Mix of uses (housing, retail, office, light industrial, institutional, all within a single, walkable area)
- Transit specifically designed to serve TO

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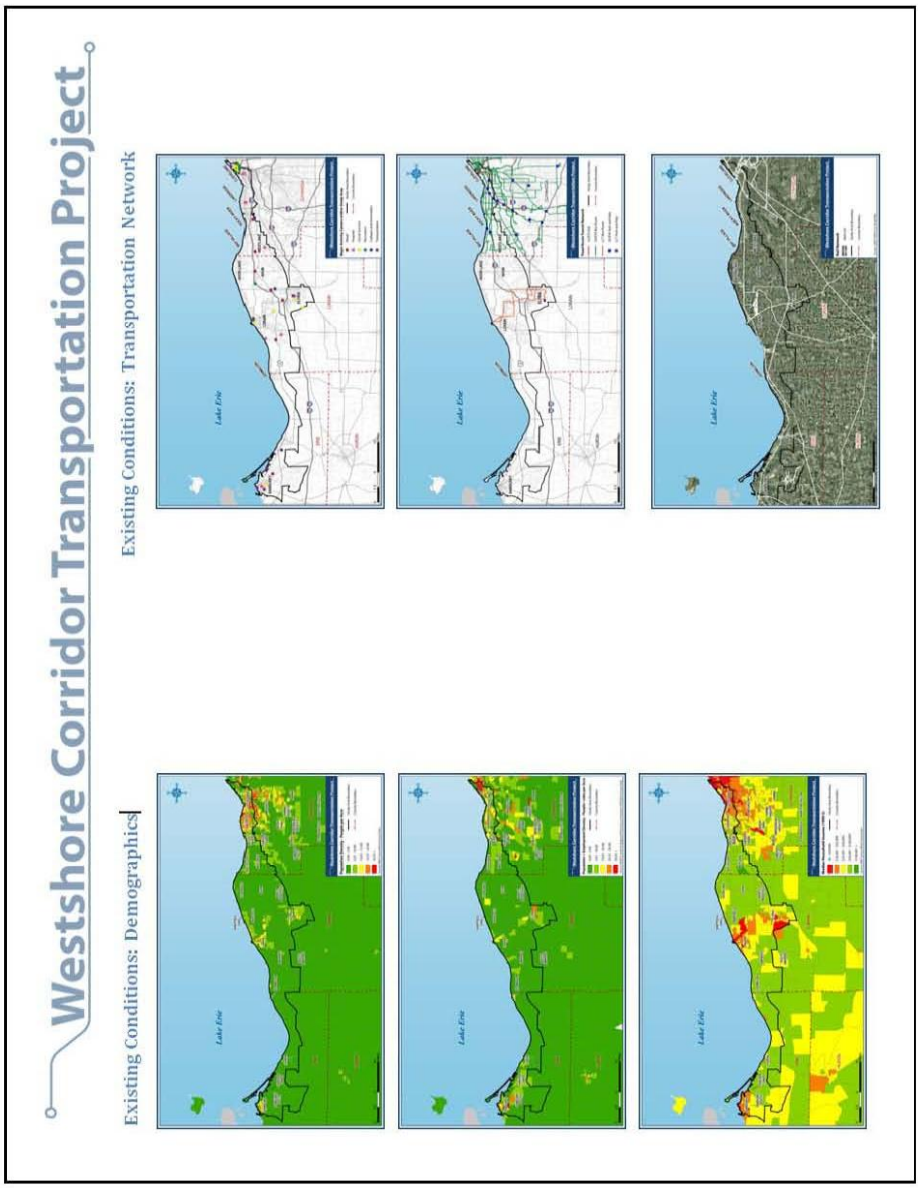
Westshore Corridor Transportation Project
Existing Conditions: Transportation Network
Existing Conditions: Demographics
Lake Erie
Lake Erie
Lake Erie
Lake Erie
Lake Erie
Lake Erie

Public Meeting #1 Minutes
Westshore Corridor Transportation Study

Survey Questionnaire

Westshore Corridor Transportation Project

Project Survey: September 14-16, 2009

The Westshore Corridor Transportation Project is analyzing transportation problems and developing potential rail and bus services for travelers in the West Shore transportation corridor, which extends along Lake Erie from Cleveland through western Cuyahoga, Lorain and Erie Counties. If you commute, live, work or travel in this corridor, please take a few minutes to fill out this survey about your transportation routine and your problems and recommendations for transportation in this corridor.

In what community do you live? _____

In what community do you work? _____

In what communities do you do most of your shopping? _____

How often do you use public transit?

- ☐ Often (5 + times per week)
- ☐ Occasionally (2-3 times per month)
- ☐ Seldom (A couple of times each year)
- ☐ Never

What transit services, if any, have you used in the past year?

- ☐ RTA Rail Rapid Transit
- ☐ RTA local bus
- ☐ RTA Park and Ride Bus
- ☐ RTA Community Responsive Transit
- ☐ LCT Local Bus
- ☐ LCT Dial-A-Ride

For what purpose do you use public transit? (Choose all that apply.)

- ☐ Commuting to work
- ☐ Shopping/Errands
- ☐ School
- ☐ Medical appointments
- ☐ Downtown Cleveland cultural/sporting events
- ☐ I don't use public transit regularly (less than once a month).

Which two locations in the study area do you think should be connected with a new transit service? (Choose one from each column)

BEGIN		*END*	
☐ Cleveland	☐ Elyria	☐ Cleveland	☐ Elyria
☐ Lakewood	☐ Vermilion	☐ Lakewood	☐ Vermilion
☐ Westlake/ Bay Village	☐ Sandusky	☐ Westlake/ Bay Village	☐ Sandusky
☐ Lorain	☐ Other: _____	☐ Lorain	☐ Other: _____

Which corridor within the study area would you like to see a new transit service? (Choose all that apply.)

- ☐ I-90 /OH-2
- ☐ Cleveland Ave/Lake Rd/Clifton Blvd
- ☐ Colorado Ave/Detroit Rd
- ☐ Center Ridge Rd
- ☐ Other: _____

What types of transit improvements should be investigated for this study area?

- ☐ New/improved Local Bus Service
- ☐ New/improved Park-N-Ride Bus Service
- ☐ New Rail Rapid Transit
- ☐ New Commuter Rail
- ☐ Other: _____
- ☐ None

What ideas, comments, questions or concerns do you have about implementing transit improvements in this study area? _____

Please mail to: Parsons Brinckerhoff, Inc., 614 W. Superior Avenue, Suite 400, Cleveland, Ohio 44113

Or, if you would like, please complete online at: http://www.surveymonkey.com/XXXXXXX

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Public Meeting Press Release

FOR MEDIA INQUIRIES ONLY:

- Richard Enty, Lorain County Transit
  440-328-2493
- Nancy Lyon Stadler, Michael Baker, Jr., Inc.
  216-776-6814
- Melissa Wicinski, BrownFlynn
  440-484-0100, ext.6

News from Lorain County

September 7, 2010

Three Public Meetings Hosted to Discuss the Westshore Corridor Transportation Project

GREATER CLEVELAND – Lorain County, Lorain County Transit (LCT) and the Westshore Corridor Task Force (WCTF), in cooperation with communities in Lorain County, Erie County and Cuyahoga County, will hold three public meetings to introduce people to the Westshore Corridor Transportation Project (WCTP) and solicit valuable feedback on potentially developing a public transit-based solution for the transportation needs of the Westshore corridor—one of the most heavily used and traveled corridors in Ohio. The public is welcome and encouraged to attend these meetings. Meeting details are listed below:

Cuyahoga County—September 14, 2010
St. John Medical Center
(29000 Center Ridge Road)
Building Two, First Floor, Auditorium B
29101 Health Campus Drive
Westlake, OH 44145
6-8 pm

Lorain County—September 15, 2010
Black River Landing
421 Black River Lane
Lorain, OH 44052
6-8 pm

Erie County—September 16, 2010
Erie County Administration Building
3rd Floor Commissioner's Chambers
2900 Columbus Avenue
Sandusky, OH 44870
6-8 pm

WCTP seeks to address the lack of public transportation options for travel in this popular metropolitan region. The need for improvements is based on several factors including limited public transit options for inter-county travel, highway traffic congestion, the need to increase economic and sustainable development along the corridor and the need to enhance and preserve the natural environment with all the potential enhancements along the anticipated public transit corridor.

Public comments will be accepted through (September 24, 2010) at (WestshoreAA@pbworld.com).

These meeting minutes represent the understanding of the issues discussed by the writer. Should you have any comments or revisions, please contact the writer within 5 days of receipt.

Public Meeting #1 Minutes
Westshore Corridor Transportation Study

Public Meeting Flyer

Westshore Corridor Transportation Project

If you work, live or travel in the area between Cleveland, Lorain and Sandusky, we want to talk to you about your ride!

CUYAHOGA COUNTY SEPTEMBER 14TH 6—8 PM	LORAIN COUNTY SEPTEMBER 15TH 6—8 PM	ERIE COUNTY SEPTEMBER 16TH 6—8 PM
St. John Medical Center (29000 Center Ridge Road) Building Two, First Floor, Auditorium B 29101 Health Campus Drive Westlake, OH 44145	Black River Landing 421 Black River Lane Lorain, OH 44052	Erie County Administration Building 3rd Floor Commissioner's Chambers 2900 Columbus Avenue Sandusky, OH 44870

The Westshore Corridor Transportation Project (WCTP) will hold three public meetings to introduce the project and solicit valuable feedback on developing public transit-based solutions for the transportation needs of the Westshore Transportation Corridor. This travel corridor extends west from downtown Cleveland through western Cuyahoga, Lorain and Erie Counties to Sandusky. It is one of Ohio's most heavily traveled routes.

Need more information? Visit our website at www.ridewestshore.com.
Have comments and recommendations? Please join us at the meetings or contact us via email at **WestshoreAA@pbworld.com**.

Make Your Opinion Count. Join Us for These Very Important Meetings.

The Westshore Corridor Transportation Study is being conducted by Lorain County, Lorain County Transit (LCT) and the Westshore Corridor Task Force (WCTF), in cooperation with transportation agencies and communities in Cuyahoga, Erie and Lorain Counties.

These meeting minutes represent the understanding of the issues discussed by the writer. Should you have any comments or revisions, please contact the writer within 5 days of receipt.

Public Meeting #1 Minutes
Westshore Corridor Transportation Study

Public Meeting Attendance – Cuyahoga County

Westshore Corridor Transportation Project
Public Meeting #1 in Cuyahoga County
September 14, 2010

Name	Address	Phone	Email
Joshua Barb	457 Northpointe Blvd. Amherst, OH 44001	216-774-2504	jbarb@clev.frb.org
Betty Blair	226 Middle Ave Elyria Oh 44035	440-329-5112	bblair@loraincо.us
Maribeth Feke	1240 W Sixth Cleve, OH 44113	216-566-5100	mfeke@gcrta.org
Paul Gecki	29222 LINCOLN RD BAY VILLAGE, OH 44140		
Jon Eckerle	13319 Madison #2 Clevo, OH 44107	440-281-1944	JEckerle@GMail Com
KEN PRENDERGAST	12029 CLIFTON #505 CLE. OH. 44107	216-288-4883	KENPRENDERGAST@ALLABOARDOHIO.ORG
GERALD HOGAN	23422 WESTCHESTER DR N.O. 44070	440-716-0043	
PAT PETRIGAN			

Westshore Corridor Transportation Project

Westshore Corridor Transportation Project
Public Meeting #1 in Cuyahoga County
September 14, 2010

Name	Address	Phone	Email
BETH LONG RTA	1240 W 6th Street Cleveland, OH 44113	566-5260	bjlong@gcrta.org
GEORGE ZELLER	3492 W 123RD ST CLEVELAND OH 44111	216-941-3366	georgez@nacs.net
BEN VAN LEAR	1469 WOODWARD AVE LAKEWOOD OH 44107	216 246 9647	benvanlear@yahoo.com
Kevin Kelley	West Life Newspaper 158 Lear Rd Avon Lake, OH	440-871-2214	Kevink@westlifenews.com
Michael Kukura	450 Glen Park Dr. Bay Village OH 44140	440-891-6830	MIKEKUKURA@OH.RR.Com
Melinda Bartizal			melinda.bartizal@dot.state.oh.us
LAURIE LEVINSON	450 Glen Park Dr Bay Village, OH 44140	(440) 892-6830	lhlevinson@ch.rr.com
Virginia Hagan	226 Middle Ave	440-328-2362	vhayna@loraincounty.us

Westshore Corridor Transportation Project

These meeting minutes represent the understanding of the issues discussed by the writer. Should you have any comments or revisions, please contact the writer within 5 days of receipt.

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Public Meeting #1 Minutes
Westshore Corridor Transportation Study

Public Meeting Attendance – Lorain County

Westshore Corridor Transportation Project
Public Meeting #1 in Lorain County
September 15, 2010

Name	Address	Phone	Email
Bob Gersna	1619 East Erie Ave	288-6333	GERSNAE OHFUCPA.NET
Virginia Hager	226 Middle Ave.	328-2362	vhager@loraincounty.oh
Rick Novak	Lorain Port Authority 611 Broadway Lorain, OH 44052	440-204-2265	rnovak@lorainportauthority.com
Jeanette Corlett	MPL Development Associates	440-899-7623	jcorlett@OHRR.com
Robert Smith	Amidac International 151 Innovation Drive, Elyria, OH 44035	440-366-4144	Robert.Smith@Amidac.com
Marge Walker	2955 Lexington Ave Lorain, OH 44053		
Allison Swaim	214 W College St Oberlin, OH 44074	704-647-1479	aswaim@oberlin.edu
Ron Nabakowski	Clerk of Courts	(440) 329-5542	nabakowski@gmail.com

Westshore Corridor Transportation Project
Public Meeting #1 in Lorain County
September 15, 2010

Name	Address	Phone	Email
Betty Blair	226 Middle 44035	440-329-5112	bblair@lorainco.us
[illegible]	205 W 20th Lorain OHIO	440-245-5350	Nicholas.Turner@mail.house.gov
Bob & Mary Butler	928 Hollywood Dr. Elyria, OH 44035	440-365-8402	mbutler928@gmail.com
Les & Suzanne Shure	1505 W. Erie Lorain 44052	440-245-0245	teachart1943@aol.com
Ameer Alghusain	151 Innovation drive Elyria, OH 44035	(440) 366-4244	ameer.Alghusain@amidac.com
Matt Zeznik	919 Old Henderson Rd Columbus Ohio 43220	614-324-5959	MATT.ZEZNIK@USRAILCAR.COM
Kurt Lauer	4686 French Creek Rd Sheffield VLG. 44054	440-213-6976	KURTL@ADII.BIZ
Dr. David Hintz			

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Public Meeting #1 Minutes
Westshore Corridor Transportation Study

Public Meeting Attendance – Lorain County

Westshore Corridor Transportation Project
Public Meeting #1 in Lorain County
September 15, 2010

Name	Address	Phone	Email
Marilyn + Michael Ramos	2328 E 32nd St Lorain, OH 44055	(440) 522-7584	
[illegible] Krueger	561 Apland, Bay Vill 44140	4403460560	
Ken Wallace	327 Brownell Av Lorain OH 44052	440 246-5341	
Don Maslyk	1813 Nichols St Lorain Ohio 44053	440 245-5341	
Ralph Bruckner	3259 Amherst Ave Lorain, OH 44052	440 714-0734	
Andy Dawar	205 Louisiana Ave Lorain, Ohio 44052	440 9352390	[illegible]
[illegible] Bernie Erin Nelson	1137 W. 18th Street Lorain, Oh 44052	440 245-6766	

Westshore Corridor Transportation Project

Westshore Corridor Transportation Project
Public Meeting #1 in Lorain County
September 15, 2010

Name	Address	Phone	Email
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Jeanine Donaldson	1515 S. Lakeview Blvd Lorain c/o 318 West Avenue, Elyria	440-322-6308	jpd@elyriaywca.org
Tim Williams	1326 Euclid ave Lorain OH 44052	322-6308	twilliams@elyriaywca.org

Westshore Corridor Transportation Project

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Public Meeting #1 Minutes
Westshore Corridor Transportation Study

Public Meeting Attendance – Erie County

Westshore Corridor Transportation Project
Public Meeting #1 in Erie County
September 16, 2010

Name	Address	Phone	Email
Roger W. Fair	5067 Cemetery Rd Port Clinton Ohio 43452	419-797-2053	RFAIR@[illegible] NET
Carrie Whitaker	2900 Columbus Ave. Sandusky, Oh 44870	419-627-7652	cwhitaker@eriecounty.oh.gov
Alex MacNicol	" Erie County "	419 627-7792	alex.macnicol@gmail.com
Amy Bowman Moore	3910 Perkins Ave Huron	419-625-7783 x226	amore@EriMetroparks.org
Tom Jackson	Sandusky Register	419 609 5836	tom.jackson@sanduskyregister.com
George Exmer	NCEMS	419 706 4213	gelmer@ftnc.com
Bud Ennis	5890 Harper Rd Vermilion	440-967-1963	[illegible]
Susan Joroski	712 W. Osborne St Sandusky, OH	419-625-1515	sjoroski@accsandusky.com

Westshore Corridor Transportation Project

Westshore Corridor Transportation Project
Public Meeting #1 in Erie County
September 16, 2010

Name	Address	Phone	Email
Betty Blair			
Virginia Haynes			
RICHARD ENTY			
LANCE WARNER	158 E. Market St, Suite 216	(419) 626-4858	LWARESRP@AOL.COM
Bill Monaghan			

Westshore Corridor Transportation Project
Public Meeting #1 in Erie County
September 16, 2010

Name	Address	Phone	Email
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PATRICK JORESKI	712 W OSBORNE	419 6251515	

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Public Meeting #2 Minutes
Westshore Corridor Transportation Study

Westshore Corridor Transportation Study

Public Meeting #2

Dates: *October 26, 27 and 28, 2011*
Locations: *Cuyahoga County, Lorain County and Erie County*

Participating Project Team Members

Betty Blair	*Lorain County Commissioner*	*440.329.5112*	*bblair@loraincounty.us*
Bill Monaghan	*Erie County Commissioner*		*bmonaghan@erie-county-ohio.net*
Virginia Haynes	*WCTF Co-Chair*	*440.328.2362*	*vhaynes@loraincounty.us*
Dr. David Hintz	*WCTF Co-Chair*	*440.759.7069*	*davidjhintz@yahoo.com*
Richard Enty	*Lorain County Transit*	*440.328.2493*	*lctdirector@loraincounty.us*
Tim Rosenberger	*Parsons Brinckerhoff*	*216.781.7808*	*Rosenberger@pbworld.com*
Matt Orenchuk	*Parsons Brinckerhoff*	*216.781.7896*	*Orenchuk@pbworld.com*
Caroline Nardi	*Parsons Brinckerhoff*	*216.781.7891*	*Nardi@pbworld.com*
Nancy Lyon Stadler	*Baker*	*216.776.6814*	*nlyonstadler@mbakercorp.com*
Chris Owen	*Baker*	*216-776-6630*	*Cowen@mbakercorp.com*

1. Background

Formal public meetings were held in each of the three counties that are included in the Westshore Corridor Transit Study project area, as shown below.

Cuyahoga County
October 24, 2011
6:00-8:00 p.m.
Lakewood City Hall, Auditorium
12650 Detroit Avenue
Lakewood, OH 44107

Erie County (2 locations)
October 25, 2011
6:00-8:00 p.m.
Erie County Administration Building
3rd Floor Commissioner's Chambers
247 Columbus Avenue
Sandusky, OH 44870

AND

3rd Floor Commissioner's Chambers
2900 Columbus Avenue
Sandusky, OH 44870

Lorain County
October 26, 2011
6:00-8:00 p.m.
Black River Landing
421 Black River Lane
Lorain, OH 44052

Opening Remarks and Introductions

Richard Enty and Tim Rosenberger opened the meetings with welcoming remarks, a brief overview of the project, and the purpose of the meeting. They gave a presentation (included in this document) and answered questions about the project. The project website is www.ridewestshore.com with a link to the Facebook page.

2. Questions

Cuyahoga County Public Meeting (October 24, 2011)

Q: The first phase is commuter bus. Is there precedent for commuter bus that is over 60 miles?

A: Akron Metro runs close to 40 miles. The initial service would be from Lorain to downtown Cleveland. Erie County is a little further than anyone is traveling now but it is not out of the question. Transit propensity is going up because the price of gas is going up; since 2007 the price of their commute has increased over $100/week

Q: Are there only morning and evening runs?
A: The service would initially run with 3 inbound and 1 outbound trip in the morning, .1 inbound and 1 outbound at noon, and 1 inbound and 3 outbound in the evening.

Q: When would there be service to Erie County?
A: Erie to downtown Cleveland transit would not happen until 2027, however, it might happen sooner if there is sufficient funding; it depends on governmental cooperation.

Q: What will it cost to ride?
A: The average fare from Lorain to downtown will initially be $5 one way. This is comparable to what Summit and Laketran charge.

Q: Are there Barriers in the state law that prevent this?
A: It is possible but no one has done it yet; reference 306.8 provision.

Q: How do people get to and from park and ride lots, etc. if they don't have cars
A: Lorain County needs to get back to its original transit service and volume. This is dependent on local funding. Lorain and Erie currently do not have local transit service.

Comment: Tom Bullock, City Council of Lakewood, supports the project. Will there be recreational/business along the potential rail service? Will it extend all the way down to Ohio City? Would Dave Gilbert and the casino agree to this?

Q: Which other rail services would we draw from for best practices? Who has similar demographics?
A: Nashville is a good example. They implemented rail service with funding from state and local governments. The federal government didn't put up money.

Comment: There will be a meeting on Oct 25th at 7pm at the Lakewood Auditorium. It will be hosted by inner ring suburbs and headed by Mary Summers and Debbie Sutherland. This potential rail service would be a good topic for that meeting.

Comment: Linda Ave and shopping center in Rocky River (the old downtown) will be a stop.

Q: 15 years from now, Amtrak may increase service through the Westshore corridor. Can we partner with them?
A: Yes it's possible but we (the project team) have not talked to them.

Q: What is the maintenance facility?
A: It could be a DMU but it will be whatever we can get

Comment: In Franklin County, the crowd of bus riders hanging around downtown is an issue.

Q: Is there cultural support for the project?
A: There isn't enough. The service would be nice for Cuyahoga County but it won't improve it much. Support needs to come from Lorain County – there needs to be a sales tax or property tax to support transit. There also needs to be support for new development. Both big hurdles for Lorain County, who will need to pass at least a 0.50 sales tax to support the potential rail service. Lorain County is in the process of building a coalition to make this happen.

Q: How long would it take to go from Erie/Lorain to downtown?
A: It will take about 60-70 minutes on a commuter rail and commuter bus service would be slower. Train travel from Lorain will be about 35-40 minutes.

Q: What does the public need to do to support this?
A: Let the local government officials know you are interested in this and work to support the project. Lakewood officials have been supportive of the project. RTA is on board as much as they can be. The real issue is getting support from the people of Lorain County.

Comment: This can unite west side of Cleveland. Each community needs to know what's in it for them; Lakewood can be a hub for people without cars, especially if we have a commuter train. There needs to be development along the tracks, on top of a train if necessary. People were coming to the centers not to get on train but to shop in CA; Sheffield Lake/Avon Lake are perfect for this. Would like Lakewood and Rocky River to be destinations not pass-throughs.

Comment: How do I get to Cedar Point once I get to Sandusky? Cedar Point has prevented transit from coming to their parking lots because a lot of their revenue comes from parking. It is not as much of a destination as people might think. Lots of workers live on site. Kalahari also has dorms because they are year-long places of business. Many hotels have started running shuttles from their buildings to Cedar Point.

Q: Would the trains use RTA Red Line rails to go into Tower City?
A: No, this service will have to use their own track on the south side of the Red Line and south of Tower City. The entrance would be on the north side of food court by the proposed casino. The technology does exist for dual mode trains, but it's complicated and it is expensive.

Q: What are the chances of regionalization of RTA?
A: LCT does not operate any buses into downtown Cleveland. At one time, RTA subsidized a route out to Lorain. RTA has the buses and the drivers but not the money to run this service to Lorain County. Other area transit agencies are pretty much set. Could a project like this a catalyst to unite the transit systems? Laketran needs to push this.

Comment (Tim Rosenberger): My personal view on the feasibility of a sustainable regional planning process? There is a 12 county region project (Toledo to Youngstown) that with a cost of $4.2million for the regional planning study to increase cooperation and integration of counties; Joe Calabrese is going to lead the transit discussion.

Erie County Public Meetings (October 25, 2011)

Comment: A person from general public: heard about it from The Plain Dealer and called Steven LaTourette's office to find out more about it. Check today's Plain Dealer today for the article.

Q: A 92,000 sq ft convention center will be an addition to Kalahari that will possibly generate revenue. Has PB looked at that? Could some of this revenue fund rail/bus service? Could additional sales tax be used to help fund this?
A: It will be hard in this economy, but it is a possibility.

Q: Are TIF districts a possibility?
A: That brings up property value, but there are really very little traffic problems, although the Innerbelt is a nightmare in the morning with the current construction. Lots of people live in Sandusky area but work in downtown Cleveland. The COO of Kalahari said people have problems

getting from airport to Kalahari and back. Richard sent a survey on bus operations to the COO but hasn't heard back from him; we need to follow up on that.

Q: What would it cost a passenger to ride the full length from Sandusky to downtown and back?
A: We are not yet sure of that pricing. To travel from Lorain to downtown would be $5 [each way].

Q: Could we run shuttle buses from Sandusky to Lorain to downtown?
A: The City of Sandusky, Perkins Township and Huron have transit service, but not all of Erie County. That is the next step – providing full County service. There are opportunities coming in Vermilion which ill be launching point for this. The goal is out of county service. It has succeeded out of Huron County, but will be a process to even get to Lorain. I think Erie County residents are a first step. We have a serious need and it is driven by demand, but it all takes money.

Comment: Roads that were built in the last 10-20 years, such as Jennings Freeway, have been planned for 30 years. Other construction would not have been able to happen if they hadn't built it. One day, it will be very costly to drive. Also, people want to be able to do other things while they are commuting, such as taking a class (Long Island), consultants can charge billable works, and it is very sociable.

Comment: The project team will make a presentation to the Erie County Commissioners before end of the year.

Lorain County Public Meeting (October 26, 2011)

Q: With respect to zoning, I am familiar with Chicago's mass transit system. It goes through low density areas but there are many dense areas near stations. Chicago is massive with lots of people working and living in downtown. Is density an issue?
A: In Lorain, Black River Landing and the surrounding areas are all part of transit oriented development concept with densities that support transit.

Q: Does the Lear-Nagle area flood a lot?
A: Yes but we will take care of that if necessary. There are civil engineering solutions to that problem that are not necessarily costly.

Q: What is the budget for bringing LCT back into action?
A: We are not sure of the amount. LCT was spending about $5million in 2008 and they are now they're spending about $100,000 for the limited transit service.

Q: Will the commuter bus services be run with diesel, gas, or electric buses?
A: Diesel coaches are planned right now but we could spend more for a hybrid bus; it depends on prices of fuel.

Q: How do we get LCT to be stronger?
A: Step one is funding. Most of the surrounding counties have a sales tax for transit. Lorain County does not. Lorain needs a sales tax to support transit or raise property taxes. This is traditionally how we pay for public transit in Ohio. Community consensus on what LCT should look like in the future is also needed. Everyone is welcome to join the coalition. There could be private sector funding or a combination of tax and private funding to support transit service in Lorain. Toledo does not have a county wide tax but several cities have property taxes; Elyria could do the same to serve that area.

Comment: People didn't understand this is where their money would go (tax) in the voting polls. There is not enough communication around this and people were upset when LCT cut back service.

Comment: Paratransit is a very popular service because it is needed; Lake County has a senior levy to raise funds.

Q: Is it possible to use public TV channels to reach people?
A: Not for this project. These efforts have been strictly public meetings. Lorain city schools and Lorain County Community College both have public TV channels.

Q: What about the railroad tracks?
A: The tracks in Lorain would not be put back right now. There is talk of adding track in Erie County. The demand for railroads is going up again, and it will be harder to deal with railroad because of this increase in demand. Lakewood got the railroad to only run 14 trains a day awhile back – was a 10 year agreement and has since expired. Congressman Kucinich has been very quiet about it. The city is trying to do something to cut back the number of at-grade crossings. There are 10 trains a day, with most in morning and afternoon rush hours.

Q: What is the travel time for commuters?
A: From Lorain to downtown Cleveland would take little over an hour on commuter train. You would be here [at Black River Landing] at about 6:30 am to catch the first inbound train. Return trips would leave Cleveland at 4:40, 5:10 and 6:00 pm with a total of 8 stops. The expected cost would be about $5 each way from Lorain, less as you get closer to downtown. The pricing is comparable to other transit systems.

Q: What about funding?
A: Need a half cent sales tax just for transit in Lorain County. The 3 fastest growing suburbs in Ohio are Avon Lake, Avon and North Ridgeville, and they are not being developed in a manner that supports transit.

Q: What is the status of the LCT buses?
A: Buses are being rotated so they all get used for LCT, some were beyond use and some were sold.

Q: How can we support the project?
A: Join the coalition, get out into community and talk to people. PB and Richard will talk to anyone who wants to listen. This project needs to be driven by grassroots efforts.

Q: Would providing school service be a good argument for funding for LCT?
A: No. That is separate (school) funding.

Comment: Cedar Point contributed money to study. They are interested in the project.

Q: Can the government make the railroads participate?
A: There is federal and state pressure on railroads to share service, but the rail companies own the railroads so they can say no. The railroads were there first.

Q: Will the Federal Transit Agency (FTA) support this project?
A: There needs to be a demonstrated willingness of local government to invest in transit service. You need local money before the FTA will work with you; but the government won't put up the money until the railroad commits; chicken and egg problem

Q: What about ridership demand? And has the project been supported by All Aboard Ohio?

A: The Casino, which is being built by Tower City, will make a difference with an increase demand. There was significant ridership in Lorain County when they had a good operating system; but need more efforts to talk to community, have had continual bad press. This is a project that benefits everyone; it gets cars off highway so there is less traffic. All Aboard Ohio has been very supportive; they distributed our press release.

Comment: The Speaker's Bureau needs to be utilized, broadened to a more general transit discussion. LCT needs fresh eyes to assess transit demand. There are no public transit options on the west side; what should it look like? What area people willing to pay for it? It is important that LCT be reestablished because it will be a main feeder for commuter service. It is not feasible to have a commuter rail system without a good bus system to support it. FTA will not support commuter rail without a good bus system. Ann Arbor to Detroit is running demo commuter transit systems paid for by Dan Gilbert, owners of Little Caesar's, and other private funders. It is very successful.

Comment: A property tax would not sell here because of the economy and the number of foreclosures. A sales tax would be a better option but the problem is that people can see on their bill how much they are paying in sales tax for public transit.

Comment: Jet Express runs from Black River Landing to Browns games and it is very successful.

Comment: Regarding transportation out to Mercy Hospital, LCT only goes to EMH so lots of people are left out.

Q: What happened with the coalition promoting high speed rail from Cleveland to Columbus (3C)?
A: All Aboard Ohio is working with Midwest rail. Federal monies are interested in rail demonstrations, so that could happen here and it needs to happen in next year or so. But we don't want to lose sight of bus service, that is very important.

Comment: Many people move out of Cuyahoga County to get away from taxes. If Lorain had this [sales] tax, people would be upset. If there are more people, you need more services, and you need lower paid workers to places out east like hotels, restaurants, etc. If there is no public transportation, the businesses have a hard time obtaining employees at these places.

Comment: Why don't people work closer to their homes? Every time gas prices go up it hurts people who have long commutes

Comment: Who are the big investors in Lorain? Can we have a forum just for them to talk to? Lions Club? How do we get them information?

Comment: We are at square one right now – we need funding for commuter rail service for project to start.

Comment: Voting on levy for sales tax is all about timing. NOACA gave us money toward the 20% match. This project is included in their long-range plan and they are looking to Lorain County to make it a priority. Governor Kasich has killed several transit project so don't count on help from the State right now. The state can facilitate when the railroads are involved, as it happened in Michigan.

Q: Have you talked to Dr. Roy Church?
A: Yes, he has been very supportive, especially bringing LCT back for students.

Q: Is ORDC still alive? [Ohio Rail Development Commission]
A: Yes, Matt Dietrich heads it.

Q: Would leasing the Ohio Turnpike give money to public transportation?

A: That is possible but not likely.

Comment: Don't privatize the turnpike. That is not a good idea.

Q: Is the sales tax for LCT on ballot this fall?
A: Don't think so. It has not been advertised.

Q: Could the County increase funding by commissioner's voting on it? Could it be put on the ballot? Could the community start a petition?
A: Yes to all three.

Comment: There has been $5billion in investments along the Health Line corridor and ridership has increased by 20%. The Health Line is more successful than other areas of RTA. Nashville is comparing street car and bus rapid transit and streetcar costs 3 times as much. Bus is cost effective.

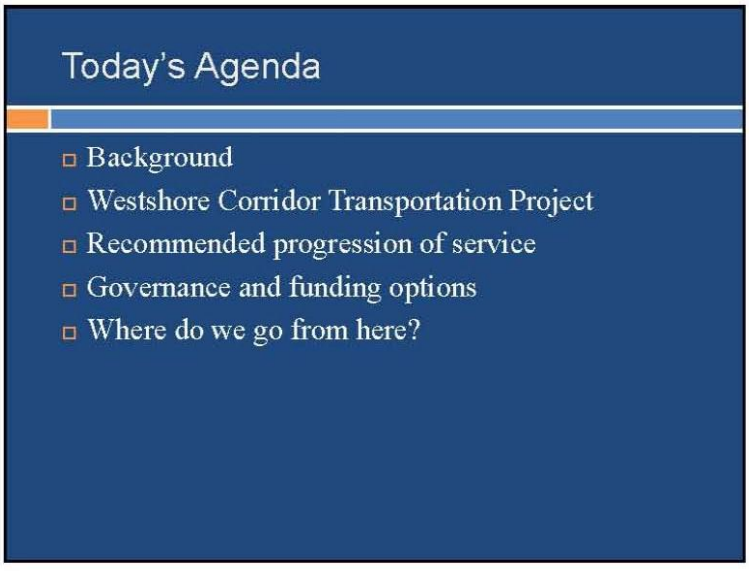
Q: What happens when you get to Cleveland [from the Westshore Rail]? Can you get buses out east?
A: The service would go to Public Square so you could transfer to the Health Line, the rail lines (Red, Blue, Green) or other buses to get out east.

Q: Commuter transit service plans limit time I can leave, come back, places I can go. This is not attractive to me because it increases my commute. This doesn't benefit everyone clearly, but it will hopefully make I-90 easier to drive. What about express bus service?
A: Express bus service is feasible if you have enough people to run buses that run from every city to Cleveland. There needs to be sufficient demand to support the service. Cleveland used to have express bus service, but does not anymore. Public transit will speed everything up. You can increase worker productivity if you're taking public transit vs. driving.

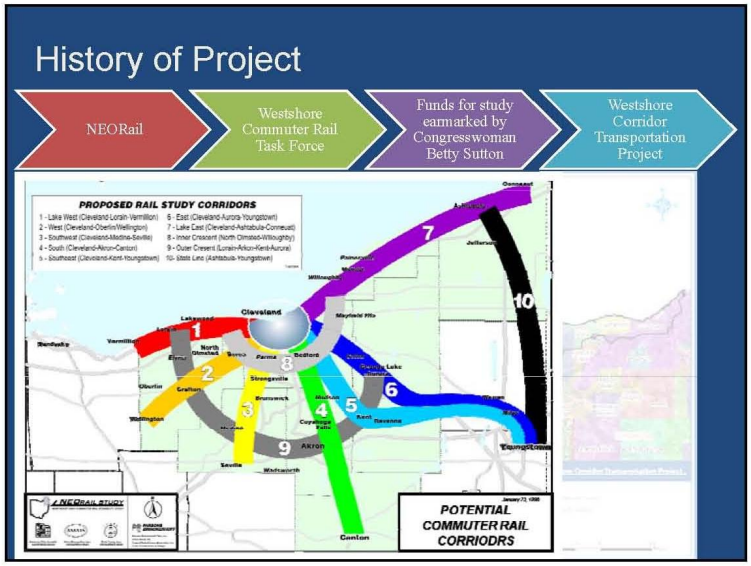
Public Meeting #2 Minutes
Westshore Corridor Transportation Study

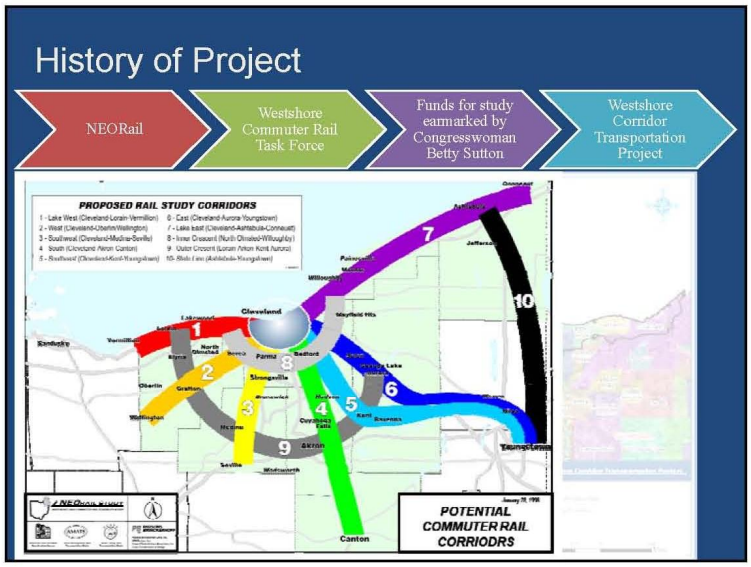
Meeting Photos – Lorain County

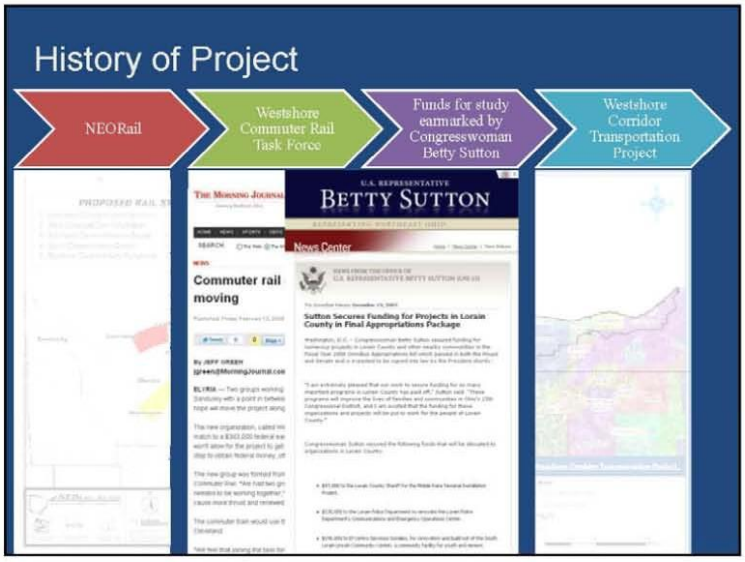
Public Meeting Presentation

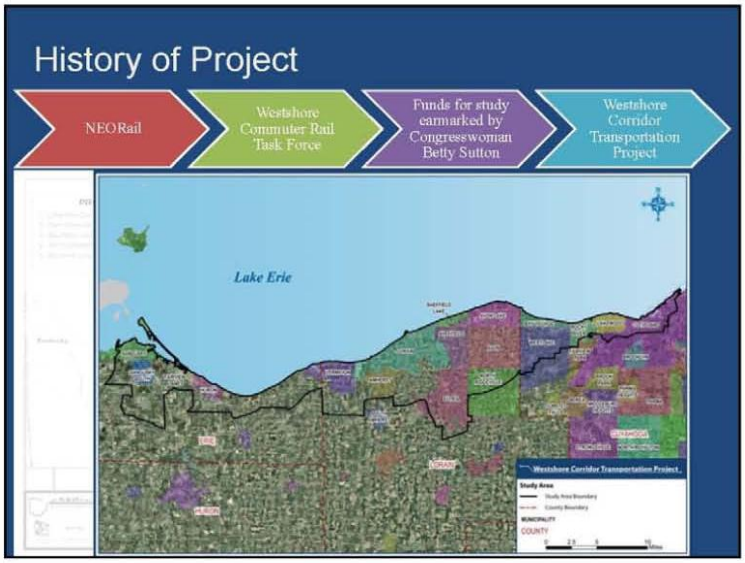


Public Meeting #2 Minutes
Westshore Corridor Transportation Study






History of Project
NEORail
Westshore Commuter Rail Task Force
Funds for study earmarked by Congresswoman Betty Sutton
Westshore Corridor Transportation Project
BETTY SUTTON
Commuter rail moving
Sutton Secures Funding for Projects in Lorain County in Final Appropriations Package

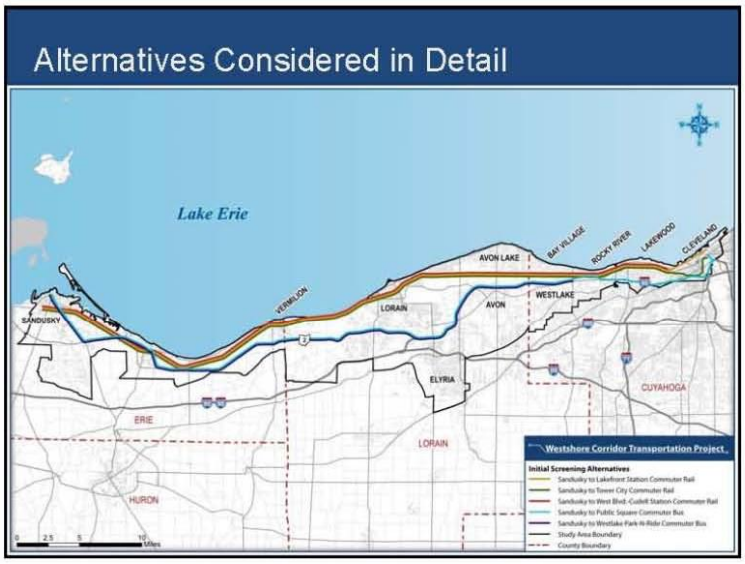

History of Project
NEORail
Westshore Commuter Rail Task Force
Funds for study earmarked by Congresswoman Betty Sutton
Westshore Corridor Transportation Project
Lake Erie

Westshore Corridor Transportation Project

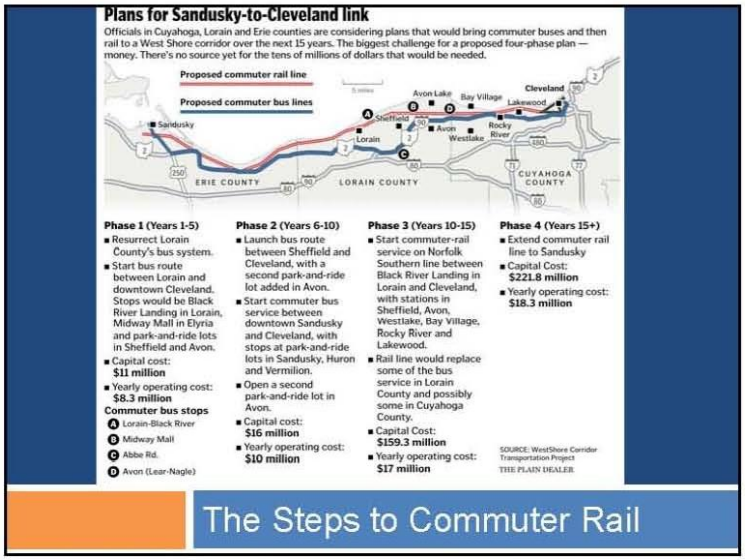
- The purpose of the WCTP is to identify cost-effective regional transportation investments that improve intercounty mobility and public transit connectivity within the Westshore Corridor.
- Identified problems:
  - Lack of transit connection between Cuyahoga, Lorain and Erie Counties
  - Lack of transit options with Lorain and Erie Counties
  - Lack of transit access to employment opportunities, and key health care, shopping, education and tourist destinations within the Corridor
  - Land use patterns in suburban growth areas that are not supportive of transit

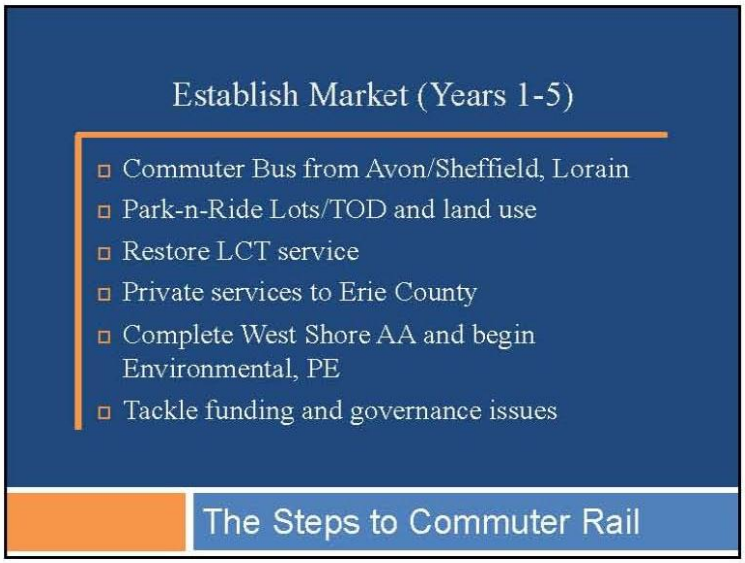
Alternatives Considered in Detail

- Commuter Rail – Sandusky to Lakefront Station
- Commuter Rail – Sandusky to Tower City
- Commuter Rail – Sandusky to West Blvd. Station
- Commuter Bus – Sandusky to Westlake Park-N-Ride
- Commuter Bus – Sandusky to Public Square


Alternatives Considered in Detail
Lake Erie
SANDUSKY
VERMILION
LORAIN
AVON LAKE
BAY VILLAGE
ROCKY RIVER
LAKEWOOD
CLEVELAND
AVON
WESTLAKE
ELYRIA
CUYAHOGA
ERIE
LORAIN
HURON
Westshore Corridor Transportation Project
Initial Screening Alternatives
Sandusky to Lakefront Station Commuter Rail
Sandusky to Tower City Commuter Rail
Sandusky to West Blvd.-Cudell Station Commuter Rail
Sandusky to Public Square Commuter Bus
Sandusky to Westlake Park-N-Ride Commuter Bus
Study Area Boundary
County Boundary


Develop Commuter Rail (Years 10-15)
Final design and construction of commuter Rail (Lorain to Tower City)
Replace most commuter bus services with commuter rail
Re-examine rail connection to Erie County
Consolidate Market (Years 6-10)
Expand commuter bus service from Lorain County
Establish commuter bus from Erie County
Complete environmental and PE
Settle funding and governance issues
FTA Full Funding Grant Agreement
Establish Market (Years 1-5)
Commuter bus from Avon/Sheffield, Lorain
Park-n-Ride Lots/TOD and land use
Restore LCT service
Complete Westshore AA and begin Environmental, PE
Tackle funding and governance issues
The Steps to Commuter Rail


Plans for Sandusky-to-Cleveland link
Officials in Cuyahoga, Lorain and Erie counties are considering plans that would bring commuter buses and then rail to a West Shore corridor over the next 15 years. The biggest challenge for a proposed four-phase plan — money. There's no source yet for the tens of millions of dollars that would be needed.
Proposed commuter rail line
Proposed commuter bus lines
Sandusky
Sheffield
Avon Lake
Bay Village
Cleveland
Lakewood
Lorain
Avon
Westlake
Rocky River
ERIE COUNTY
LORAIN COUNTY
CUYAHOGA COUNTY
Phase 1 (Years 1-5)
Resurrect Lorain County's bus system.
Start bus route between Lorain and downtown Cleveland. Stops would be Black River Landing in Lorain, Midway Mall in Elyria and park-and-ride lots in Sheffield and Avon.
Capital cost: $11 million
Yearly operating cost: $8.3 million
Commuter bus stops
A Lorain-Black River
B Midway Mall
C Abbe Rd.
D Avon (Lear-Nagle)
Phase 2 (Years 6-10)
Launch bus route between Sheffield and Cleveland, with a second park-and-ride lot added in Avon.
Start commuter bus service between downtown Sandusky and Cleveland, with stops at park-and-ride lots in Sandusky, Huron and Vermilion.
Open a second park-and-ride lot in Avon.
Capital cost: $16 million
Yearly operating cost: $10 million
Phase 3 (Years 10-15)
Start commuter-rail service on Norfolk Southern line between Black River Landing in Lorain and Cleveland, with stations in Sheffield, Avon, Westlake, Bay Village, Rocky River and Lakewood.
Rail line would replace some of the bus service in Lorain County and possibly some in Cuyahoga County.
Capital Cost: $159.3 million
Yearly operating cost: $17 million
Phase 4 (Years 15+)
Extend commuter rail line to Sandusky
Capital Cost: $221.8 million
Yearly operating cost: $18.3 million
SOURCE: WestShore Corridor Transportation Project
THE PLAIN DEALER
The Steps to Commuter Rail


Establish Market (Years 1-5)
Commuter Bus from Avon/Sheffield, Lorain
Park-n-Ride Lots/TOD and land use
Restore LCT service
Private services to Erie County
Complete West Shore AA and begin Environmental, PE
Tackle funding and governance issues
The Steps to Commuter Rail

Consolidate Market (Years 6-10)

- Expand commuter bus service from Lorain County
- Establish commuter bus from Erie County
- Complete environmental and PE
- Settle funding and governmental issues
- FTA FFGA

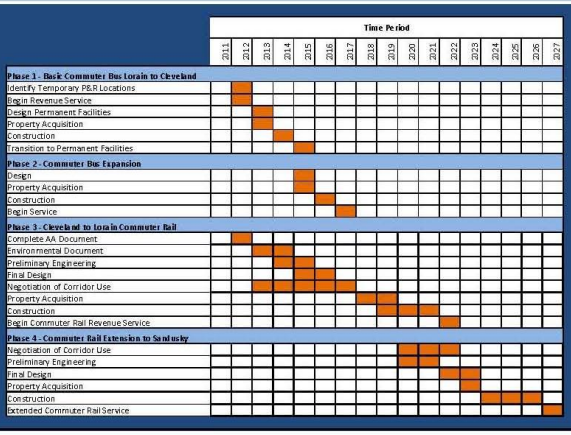
The Steps to Commuter Rail

Develop Commuter Rail (Years 10-15)

- Final design and construction of commuter rail (Lorain to Tower City)
- Replace most commuter bus services with commuter rail
- Re-examine rail connection to Erie County

The Steps to Commuter Rail

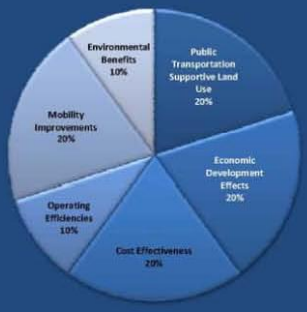
Proposed Schedule



Governance

- There are many options available for operating commuter bus and rail service:
  - GCRTA
  - LCT
  - New intercounty agency
  - Private entity
- Counties must reach consensus on who will operate the service.

Land Use



- Land use and economic development make up 40% of the rating FTA uses to evaluate transit projects.

Avon (Lear-Nagle)

- 27.5 acres
- 12 units/acre
- 339 units

Avon (Lear-Nagle)

Avon: Mixed Use/Town Center I (Hypothetical)

- 76.4 acres
- 12.65 units/acre
- 584 townhouse units
- 383 units over retail
- 967 total units
- 130,000 SF retail
- 120,000 SF office

Avon: Mixed Use/Town Center II (Hypothetical)

Estimated Costs

	Phase 1 Bus	Phase 2 Bus	Phase 3 CR Lorain	Phase 4 CR Sandusky
Total Capital Cost (2010 $)	$11.2 million	$15.8 million	$159.3 million	$221.8 million
Annual O&M Cost (2010 $)	$8.3 million	$10.4 million	$16.9 million	$18.3 million

Ridership Estimates

- Commuter Rail
  - Lorain-Tower City (Phase 3): 2,400 daily trips
    - 1,200 daily riders
  - Sandusky-Tower City (Phase 4): 2,600
  - Lorain-West Boulevard: 1,350
- Commuter Bus: 50%-80% of Commuter Rail

Erie County

- If additional track is required, project will be unfeasible
- Ridership will need to be built up over time
- Study identified opportunities for transit services to Erie County from Cuyahoga, Lorain
- Opportunities for private bus operator entrepreneurs
  - Visitors to Erie County Entertainment Destinations
  - Airport Trips
  - Lower Income Workers

Possible Funding Options

- Multi-county project—Two or Three Counties Participating
- Passenger Fares
- Private investment and joint development
- Voter supported taxes
  - Sales
  - Property
  - Tourism
  - Revenue bonds
  - Value capture of new development
- LCT and Greater Cleveland RTA service reallocations

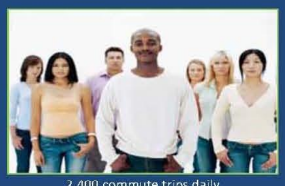
Next Steps

- Public meetings
- Complete the technical analysis
- Wrap up Phase I of study
- Continue discussions with NS Railroad
- Additional analysis needed on ridership using FTA approved travel forecasting model
- Begin implementation of first steps (bus service) pending financial capacity

Railroad Negotiations

- Discussions have begun with NS Railroad
  - Review of Capital Investment Proposals and Estimates
- Railroads are Private Property-Period
- Capital costs of commuter rail will largely depend on railroad capacity and railroad demands
- Railroad discussions will continue through first two phases of study

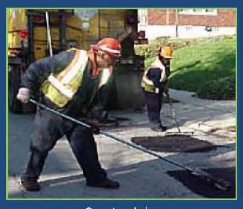
Benefits of West Shore Program



2,400 commute trips daily

Stimulates and Shapes Development

Spurs Investment



Creates Jobs

Thank You

- For more information visit www.ridewestshore.com
- Contact information:
  Tim Rosenberger
  614 W. Superior Avenue, Suite 400
  Cleveland, Ohio 44113
  Phone (216) 781-7888
  rosenberger@pbworld.com

Public Meeting #2 Minutes
Westshore Corridor Transportation Study

Public Meeting Display Boards

Westshore Corridor Transportation Project

STEPS TO COMMUTER RAIL

The Westshore Corridor Transportation Project (WCTP) seeks to address the lack of public transportation options for travel in the Westshore Corridor, which extends from downtown Cleveland through western Cuyahoga, Lorain, and Erie Counties to Sandusky. The need for improvements is based on several factors including a lack of public transit options for inter-county travel, lack of transit options within Lorain and Erie Counties, and the need for more sustainable land use patterns in suburban growth areas.

While the development of commuter rail service along the Norfolk Southern (former Nickel Plate) rail line that passes through Lakewood, Bay Village and much of northern Lorain County has been the goal for many citizens and political leaders in the Westshore Corridor, the analysis conducted for the WCTP indicates that a transit market must first be established within the Westshore Corridor before commuter rail can become a reality.

The WCTP suggests that an inter-county transit market could be established in several phased increases, with the goal of ultimately implementing commuter rail service.

Establish Market (Years 1-5)

- Commuter bus from Avon, Sheffield, Lorain
- Park-n-Ride lots/TOD and land use
- Restore LCT service to pre-2009 levels
- Complete Westshore AA and begin environmental, preliminary engineering
- Tackle funding and governance issues

Consolidate Market (Years 6-10)

- Expand commuter bus service in Lorain
- Establish commuter bus service in Erie
- Complete environmental and preliminary engineering
- Settle funding and governance issues

Develop Commuter Rail (Years 10-15)

- Final design and construction of commuter rail between Lorain and Tower City
- Replace most commuter bus services with commuter rail
- Re-examine rail connection to Erie County

Currently, commuter bus services to downtown Cleveland operate from Medina, Summit, Portage and Lake Counties. Lorain County is the most populous county surrounding Cuyahoga County that does not have bus service to downtown Cleveland.

Westshore Corridor Transportation Project

PHASE 1

In Phase 1, a single commuter bus route would be operated between Lorain and downtown Cleveland. Stops or park and ride lots would be located at:

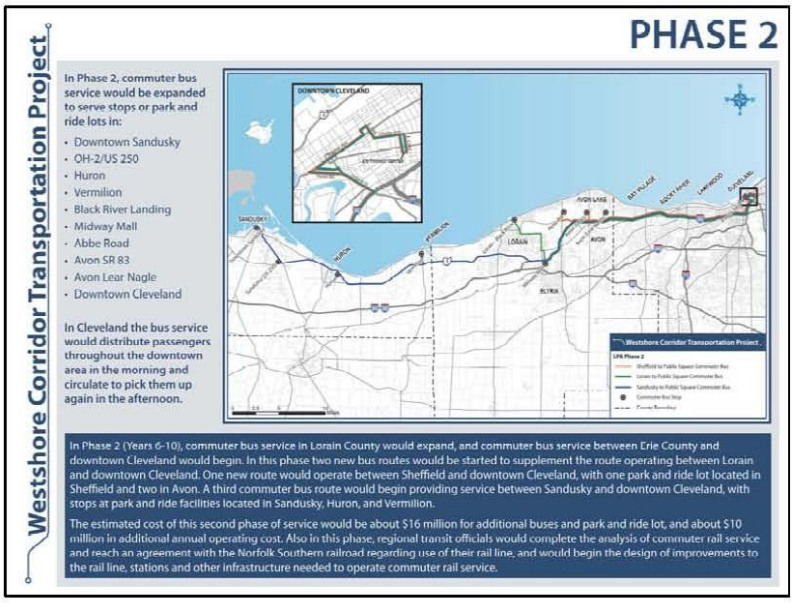
- Black River Landing
- Midway Mall
- Abbe Road
- Avon SR 83
- Downtown Cleveland

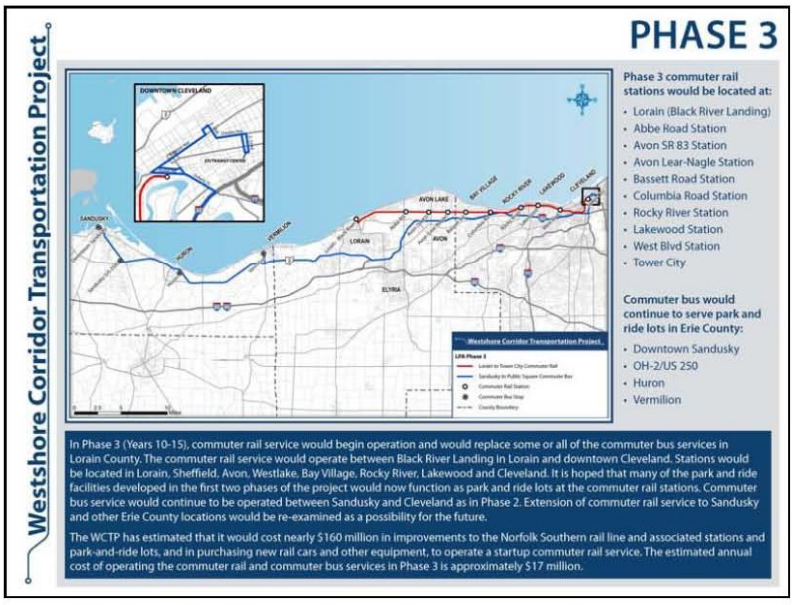
In Cleveland the bus service would distribute passengers throughout the downtown area in the morning and circulate to pick them up again in the afternoon.

In this phase, bus service to Erie County could potentially be provided by a private operator depending on demand.

Phase 1 (the next five years) includes implementation of commuter bus service between Lorain County and downtown Cleveland. The proposed service would include basic commuter bus service between the city of Lorain and downtown Cleveland with stops at Black River Landing, Midway Mall, and two new park and ride lots located in Sheffield and Avon. In this phase, Lorain County Transit would be restored to its pre-2009 service levels to distribute passengers throughout Lorain County.

Implementing this service would cost approximately $11 million per year in buying buses and outfitting park-and-ride lots in Lorain County. The annual estimated annual operating cost of Phase 1 is $8.3 million. While commuter bus service is made operational, work would continue on the analysis of the benefits and environmental impacts of the commuter rail service to allow for that service to be developed in the future. Discussions with the Norfolk-Southern Railroad about use of their rail line for commuter rail service began as part of the West Shore study, and would continue through the first phase of development.


Westshore Corridor Transportation Project
PHASE 2
In Phase 2, commuter bus service would be expanded to serve stops or park and ride lots in:
• Downtown Sandusky
• OH-2/US 250
• Huron
• Vermilion
• Black River Landing
• Midway Mall
• Abbe Road
• Avon SR 83
• Avon Lear Nagle
• Downtown Cleveland
In Cleveland the bus service would distribute passengers throughout the downtown area in the morning and circulate to pick them up again in the afternoon.
In Phase 2 (Years 6-10), commuter bus service in Lorain County would expand, and commuter bus service between Erie County and downtown Cleveland would begin. In this phase two new bus routes would be started to supplement the route operating between Lorain and downtown Cleveland. One new route would operate between Sheffield and downtown Cleveland, with one park and ride lot located in Sheffield and two in Avon. A third commuter bus route would begin providing service between Sandusky and downtown Cleveland, with stops at park and ride facilities located in Sandusky, Huron, and Vermilion.
The estimated cost of this second phase of service would be about $16 million for additional buses and park and ride lot, and about $10 million in additional annual operating cost. Also in this phase, regional transit officials would complete the analysis of commuter rail service and reach an agreement with the Norfolk Southern railroad regarding use of their rail line, and would begin the design of improvements to the rail line, stations and other infrastructure needed to operate commuter rail service.


Westshore Corridor Transportation Project
PHASE 3
Phase 3 commuter rail stations would be located at:
• Lorain (Black River Landing)
• Abbe Road Station
• Avon SR 83 Station
• Avon Lear-Nagle Station
• Bassett Road Station
• Columbia Road Station
• Rocky River Station
• Lakewood Station
• West Blvd Station
• Tower City
Commuter bus would continue to serve park and ride lots in Erie County:
• Downtown Sandusky
• OH-2/US 250
• Huron
• Vermilion
In Phase 3 (Years 10-15), commuter rail service would begin operation and would replace some or all of the commuter bus services in Lorain County. The commuter rail service would operate between Black River Landing in Lorain and downtown Cleveland. Stations would be located in Lorain, Sheffield, Avon, Westlake, Bay Village, Rocky River, Lakewood and Cleveland. It is hoped that many of the park and ride facilities developed in the first two phases of the project would now function as park and ride lots at the commuter rail stations. Commuter bus service would continue to be operated between Sandusky and Cleveland as in Phase 2. Extension of commuter rail service to Sandusky and other Erie County locations would be re-examined as a possibility for the future.
The WCTP has estimated that it would cost nearly $160 million in improvements to the Norfolk Southern rail line and associated stations and park-and-ride lots, and in purchasing new rail cars and other equipment, to operate a startup commuter rail service. The estimated annual cost of operating the commuter rail and commuter bus services in Phase 3 is approximately $17 million.

Public Meeting Press Release

News from Lorain County

October 17, 2011

Public Meetings on Proposed WestShore Corridor Transportation Project Plan
GREATER CLEVELAND – In the near future, residents, regional visitors and commuter could have safe, convenient new options for travel between major points in Erie, Lorain and Cuyahoga Counties including commuter bus and rail, according to planners on the WestShore Transportation Project. However, new local funding sources must be identified, further studies undertaken, and railroad and intercounty agreements inked before a major new service like commuter rail service is ready to operate.

On behalf of project co-sponsors Lorain County Board of Commissioners/Lorain County Transit and Lorain County Community Alliance, the WestShore Commuter Rail Task Force and communities in Lorain County, Erie County and Cuyahoga County, will hold three public meetings to present study findings to-date for recommended travel options, costs, benefits and funding/financing for the WestShore Corridor. Public comments are needed in order to finalize the proposed package of options designed to improve longer-distance public transit service between the WestShore counties of Erie, Lorain and Cuyahoga.

The public is invited and encouraged to attend one or more of the following meetings:

Cuyahoga County—October 24, 2011
Lakewood City Hall
Auditorium
12650 Detroit Avenue
Lakewood, OH 44107
6-8 pm

Erie County—October 25, 2011 – 2 MEETING LOCATIONS
Erie County Administration Building
3rd Floor Commissioner's Chambers
247 Columbus Avenue
Sandusky, OH 44870
6-8pm

AND

3rd Floor Commissioner's Chambers
2900 Columbus Avenue
Sandusky, OH 44870
6-8pm

Public Meeting #2 Minutes
Westshore Corridor Transportation Study

Lorain County—October 26, 2011
Black River Landing
421 Black River Lane
Lorain, OH 44052
6-8 pm

For more information, please contact:
Tim Rosenberger – PB: 216-832-2952
Nancy Lyon Stadler – Michael Baker, Jr., Inc.: 216-776-6814
Marissa Beechuk – BrownFlynn: 440-484-0100, ext. 211

WESTSHORE CORRIDOR TRANSPORTATION STUDY BACKGROUND

The WestShore Corridor Transportation Project (WCTP) seeks to address the lack of public transportation options for travel in the WestShore Corridor, which extends from downtown Cleveland through western Cuyahoga, Lorain, and Erie Counties to Sandusky. The need for improvements is based on several factors including a lack of public transit options for inter-county travel, lack of transit options within Lorain and Erie Counties, and the need for more sustainable land use patterns in suburban growth areas.

While the development of commuter rail service along the Norfolk Southern (former Nickel Plate) rail line that passes through Lakewood, Bay Village and much of northern Lorain County has been the goal for many citizens and political leaders in the WestShore Corridor, the analysis conducted for the WCTP indicates that a transit market must first be established within the WestShore Corridor before commuter rail can become a reality. Currently, commuter bus services to downtown Cleveland operate from Medina, Summit, Portage and Lake Counties. Lorain County is the most populous county surrounding Cleveland that does not have bus service to downtown Cleveland. The WCTP suggests that an inter-county transit market could be established in several phases.

FOR MEDIA INQUIRIES ONLY:
Richard Enty, Project Manager

In Phase 1, during the next five years, would include implementation of commuter bus service between Lorain County and downtown Cleveland. The proposed service would include basic commuter bus service between the city of Lorain and downtown Cleveland with stops at Black River Landing, Midway Mall, and two new park and ride lots located in Sheffield and Avon. In this phase, Lorain County Transit would be restored to its pre-2009 service levels to distribute passengers throughout Lorain County.

Implementing this service would cost approximately $11 million per year in buying buses and outfitting park-and-ride lots in Lorain County. The annual estimated annual operating cost of Phase 1 is $8.3 million. While commuter bus service is made operational, work would continue on the analysis of the benefits and environmental impacts of the commuter rail service to allow for that service to be developed in the future. Discussions with the Norfolk-Southern Railroad about use of their rail line for commuter rail service began as part of the West Shore study, and would continue through the first phase of development.

In Phase 2 (Years 6-10), commuter bus service in Lorain County would expand, and commuter bus service between Erie County and downtown Cleveland would begin. In this phase two new bus routes would be started to supplement the route operating between Lorain and downtown Cleveland. One new route would operate between Sheffield and downtown Cleveland, with one

park and ride lot located in Sheffield and two in Avon. A third commuter bus route would begin providing service between Sandusky and downtown Cleveland, with stops at park and ride facilities located in Sandusky, Huron, and Vermilion.

The estimated cost of this second phase of service would be about $16 million for additional buses and park and ride lot, and about $10 million in additional annual operating cost. Also in this phase, regional transit officials would complete the analysis of commuter rail service and reach an agreement with the Norfolk Southern railroad regarding use of their rail line, and would begin the design of improvements to the rail line, stations and other infrastructure needed to operate commuter rail service.

In Phase 3 (Years 10-15), commuter rail service would begin operation and would replace some or all of the commuter bus services in Lorain County, and would perhaps replace some bus services in Cuyahoga County. The commuter rail service would operate between Black River Landing in Lorain and downtown Cleveland. Stations would be located in Lorain, Sheffield, Avon, Westlake, Bay Village, Rocky River, Lakewood and Cleveland. It is hoped that many of the park and ride facilities developed in the first two phases of the project would now function as park and ride lots at the commuter rail stations. Commuter bus service would continue to be operated between Sandusky and Cleveland as in Phase 2. Extension of commuter rail service to Sandusky and other Erie County locations would be re-examined as a possibility for the future.

The WestShore Study has estimated that it would cost nearly $160 million in improvements to the Norfolk Southern rail line and associated stations and park-and-ride lots, and in purchasing new rail cars and other equipment, to operate a startup commuter rail service. The estimated annual cost of operating the commuter rail and commuter bus services in Phase 3 is approximately $17 million.

There are many challenges to developing intercounty transit service in the WestShore corridor. The most important of these is the establishment of a sustainable funding source to support the service. Currently, Lorain and Erie Counties lack a secure dedicated funding source for mass transit service to match the 1% county wide sales tax that supports the Greater Cleveland Regional Transit Authority (GCRTA) in Cuyahoga County. A source for those county's portions of the cost of operating the service would be necessary to allow service to be operated. Identifying a potential operator of the commuter bus and rail service-whether it be Lorain County Transit (LCT), GCRTA, Erie County Transit, some combination of those agencies, or a new agency, is another issue that must be resolved before operation can begin. The high cost of commuter rail may be beyond the funding capacity of the region at this time, but the phased approach may allow for the more fiscally manageable commuter bus service to begin operating while the region works toward the goal of developing commuter rail.

The budget for this phase of the WestShore Corridor Transportation Project is $423,000 and was managed by Lorain County. Funds for 80% of this budget came from a Federal appropriation secured by Congresswoman Betty Sutton in 2008. The remaining 20% of the project budget was contributed by local sources including the private sector, municipalities, transit authorities and government agencies from all three project area counties. Representatives from the Northeast Ohio Areawide Coordinating Agency (NOACA), GCRTA, ODOT, Lorain County Transit and other organizations helped in manage the project via the WestShore Corridor Commuter Rail Task Force.

Public comments will be accepted through November 2, 2011 at WestshoreAA@pbworld.com.

Public Meeting Flyer

Westshore Corridor Transportation Project

If you work, live or travel in the area between Cleveland, Lorain and Sandusky, we want to talk to you about your ride!

CUYAHOGA COUNTY OCTOBER 24TH 6—8 PM	ERIE COUNTY OCTOBER 25TH 6—8 PM	LORAIN COUNTY OCTOBER 26TH 6—8 PM
Lakewood City Hall Auditorium 12650 Detroit Avenue Lakewood, OH 44107	Erie County Administration Building 3rd Floor Commissioner's Chambers 2900 Columbus Avenue Sandusky, OH 44870	Black River Landing 421 Black River Lane Lorain, OH 44052

The Westshore Corridor Transportation Project (WCTP) will hold three public meetings to provide updates on the project and solicit valuable feedback on developing public transit-based solutions for the transportation needs of the Westshore Transportation Corridor. This travel corridor extends west from downtown Cleveland through western Cuyahoga, Lorain and Erie Counties to Sandusky. It is one of Ohio's most heavily traveled routes.

Need more information? Visit our website at www.ridewestshore.com.
Have comments and recommendations? Please join us at the meetings or contact us via email at **WestshoreAA@pbworld.com**.

Make Your Opinion Count. Join Us for These Very Important Meetings.

The Westshore Corridor Transportation Study is being conducted by Lorain County, Lorain County Transit (LCT) and the Westshore Corridor Task Force (WCTF), in cooperation with transportation agencies and communities in Cuyahoga, Erie and Lorain Counties.

Public Meeting #2 Minutes
Westshore Corridor Transportation Study

Public Meeting Attendance – Cuyahoga County

Westshore Corridor Transportation Project
Public Meeting - Lakewood City Hall
October 24, 2011 - 6:00-8:00 PM

	Name	Address	Phone	Email
1	Steven Rubin	1745 W 25 ST Cleveland oh 44113	216-466-2284	
2	George Zeller	3492 W 123rd ST Cleveland, OH 44111	216 941 3366	
3	Marvin Ronaldson	1513 Robinwood AVE 44107	216-288-2733	Billew16@att.net
4	Melinda Bartizal	[illegible] ODOT-D12	216-584-2087	melinda.bartizal@dot.state.oh.us
5	John M. Motl	ODOT D-12	216-584-2085	john.motl@dot.state.oh.us
6	Betty Blair	(44035) Elyria, Oh 131 Yunker Ct.	440-458-5603	blairforcommish@aol.com
7	Mark Zannoni	Lakewood	216-539-5864	mzannoni@zannoni.com
8	Larry Jacobson	1219 E. Melrose Westlake 44145		
9	Maribeth Feke	1240 W Sixth Street Cleve, OH 44113	216-566-5160	mfeke@gcrta.org
10	Bill Long	"	216-566-5240	bjlong@gcrta.org

Westshore Corridor Transportation Project
Public Meeting - Lakewood City Hall
October 24, 2011 - 6:00-8:00 PM

	Name	Address	Phone	Email
11	Alice Gregory	1509 Lakewood Ave	216-246-4227	alice-gregory@att.net
12	Howard Moore	1446 Mars Ave Lakewood OH 44107		
13	Rodger Sillars	1167 Oxford Rd Cleveland Hts OH	216-334-4406	rjsillars@gmail.com
14	Ian Andrews	14701 Detroit Ave Lakewood, OH 44107	216-521-0655	iandrews@lakewoodalive.com
15	Tom Bullock	1306 Cook Ave	440 554 7203	tom.bullock@lakewoodoh.net
16	Jim Eckerle	[illegible]	440 281-1944	JEckerle@GMail.Com
17				
18				
19				
20				

Page 30 of 32

Public Meeting #2 Minutes
Westshore Corridor Transportation Study

Public Meeting Attendance – Erie County

Westshore Corridor Transportation Project
Public Meeting - Erie County Administration Building 2900 Columbus Ave
October 25, 2011 - 6:00-8:00 PM

	Name	Address	Phone	Email
1	Joseph Finnerty	30860 HILLIARD WESTLAKE	440 871 0107	
2	THOMAS Schwan SANDUSKY TRANSIT SYS	1330 N. DEPOT ST SANDUSKY, OH 44870	419-621-8462	Thomas.Schwan@ci.Sandusky.oh.us
3	PATRICIA PETERSEN	637 MAIN ST VERMILION	440-967-3233	
4	Bill Monaghan	Sandusky Transit 2900 Columbus Ave	419-627-7753	
5	[illegible]	611 Broadway Lorain Lorain Port Authority	440-204-2265	[illegible] Port Authority.com
6	DENNIS LOMONT	14719 ST RT 113	440-965-8373	ge13031@yahoo.com
7	Betty Blair	131 Yunker Ct Elyria	440-458-5607	blairforcommish@aol.com
8				
9				
10				

Westshore Corridor Transportation Project
Public Meeting - Erie County Administration Building
October 25, 2011 - 6:00-8:00 PM

	Name	Address	Phone	Email
1	TED KNAUR	404 LINDEN WAY SANDUSKY	(419) 626-8982	tknaur@erie.net
2	STEVE RECHT	1035 WAYNE STREET	(419)-627-6671	SteveR@eriecountyoh.gov
3				
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Public Meeting #2 Minutes
Westshore Corridor Transportation Study

Public Meeting Attendance – Lorain County

Westshore Corridor Transportation Project
Public Meeting - Black River Landing
October 26, 2011 - 6:00-8:00 PM

	Name	Address	Phone	Email
1	Holly Moore Kowalski	32555 Captain's Galley Avon Lake, OH 44012	440 933 1695	hollymoorekowalski @gmail.com
2	Theodore Roberts	1730 BROADWAY 306 LORAIN 44052	(440) 708-2537	Roberts_theodore@yahoo.com
3	ROBERT SMITH	151 INNOVATION DRIVE ELYRIA, OH 44035	(440) 506-2280	ROBERT.SMITH@AMIDAC.com
4	MATT ZELNIK	919 OLD HENDERSON Rd Columbus Ohio 43220	614-324-5959	MZELNIK@VALVERECOVERY.com
5	DENNIS FLORES	903 W. 18th St LORAIN, OH 44052	440-714-7810	dennisforlorain@gmail.com
6	JUAN OGRODNIK	533 METCALF RD ELYRIA ohio 44035	(440)-365-8820	JuanOgrodnik@yahoo.com
7	Barbara Cook	1604 W 20th St Lorain Ohio 44052	(440) 246-1311	
8	[illegible]	1507 E Erie Ave Lorain		
9	Mark Provenza	2550 Broadway Ave Lorain, OH	(419) 239-8273	mark.provenza@live.com
10	HARRY WILLIAMSON JR	1900 W. 36th LORAIN, OH 44053	440-864-2720	HARRYWE@centurytel.net

Westshore Corridor Transportation Project
Public Meeting Black River Landing
October 26, 2011 - 6:00-8:00 PM

LCOOA, LCDJFS Board, Commissioner

	Name	Address	Phone	Email
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Westshore Corridor Transportation Project

West Shore Corridor Alternatives Analysis Study

Chapter 4 - Appendix

Existing Conditions Appendix

June 2013

Appendix A4 – Demographics

Appendix A4 gives demographic information on population, employment, and land development for the study area. The demographics of the WCTP study area are striking in their range and disparity. The study area encompasses multiple municipalities with major differences in socio-economic backgrounds.

The information is presented in this appendix because of the implications to development and ridership which will affect any future transit service in the corridor. Population density, household income, race, age, etc., each can be indicative of the potential for transit ridership and transit mode choice for trips within the corridor.

Population

The population of municipalities in the WCTP study area is shown in Table A4.1. Note the information in the table is for the entire municipality, which may include portions that lie outside of the study area.

Table A4.1 shows trends that were referenced in the main Existing Conditions chapter. Many of the municipalities are losing population while a small number are gaining population. Those losing population are the older core cities in the study area, including Cleveland, Lorain, Elyria, and Sandusky. Those gaining are the newly settled suburbs in between Lorain and Cleveland, including Avon Lake, Avon, North Ridgeville and Westlake.

Table 4.1: 1990, 2000, and 2008 Population by Municipality

Municipality	1990 Population	2000 Population	2008 ACS
Cleveland	505,616	477,459	397,901
Lakewood	59,718	56,646	54,210
Rocky River	20,410	20,735	
Westlake	27,018	31,719	31,356
Bay Village	17,000	16,087	
North Ridgeville	21,564	22,338	27,129
Avon Lake	15,066	18,145	21,794
Avon	7,337	11,446	
Sheffield Lake	9,825	9,371	
Sheffield	1,943	2,949	
Lorain	71,245	68,652	66,849
Elyria	56,746	55,953	53,398
Vermilion	11,127	10,927	
Huron	7,030	7,958	
Sandusky	29,764	27,844	25,739

Source: US Census

Population Density

Public transportation works best in places with high population density. Areas with high population density allow many people to access transit services on foot, and promote walking as a primary form of transportation. Population density from the 2000 US Census is shown in Table A4.2. 2000 US Census data was used in order to compare all densities fairly across the study area. Lakewood, with a population density of 13.2 persons per acre, is the densest city in the study area (higher than the City of Cleveland. Lakewood's density is due to the number of large apartment buildings and "doubles"—both up-down and side-by-side dual residence houses—that are occupied within the city. Sheffield, with a population density of 0.4 people per acre, has the lowest population density in the study area. Sheffield has mostly large-lot single family houses and a significant amount of rural land (a quality it shares with Avon and Avon Lake), which spreads out the population and reduces the density.

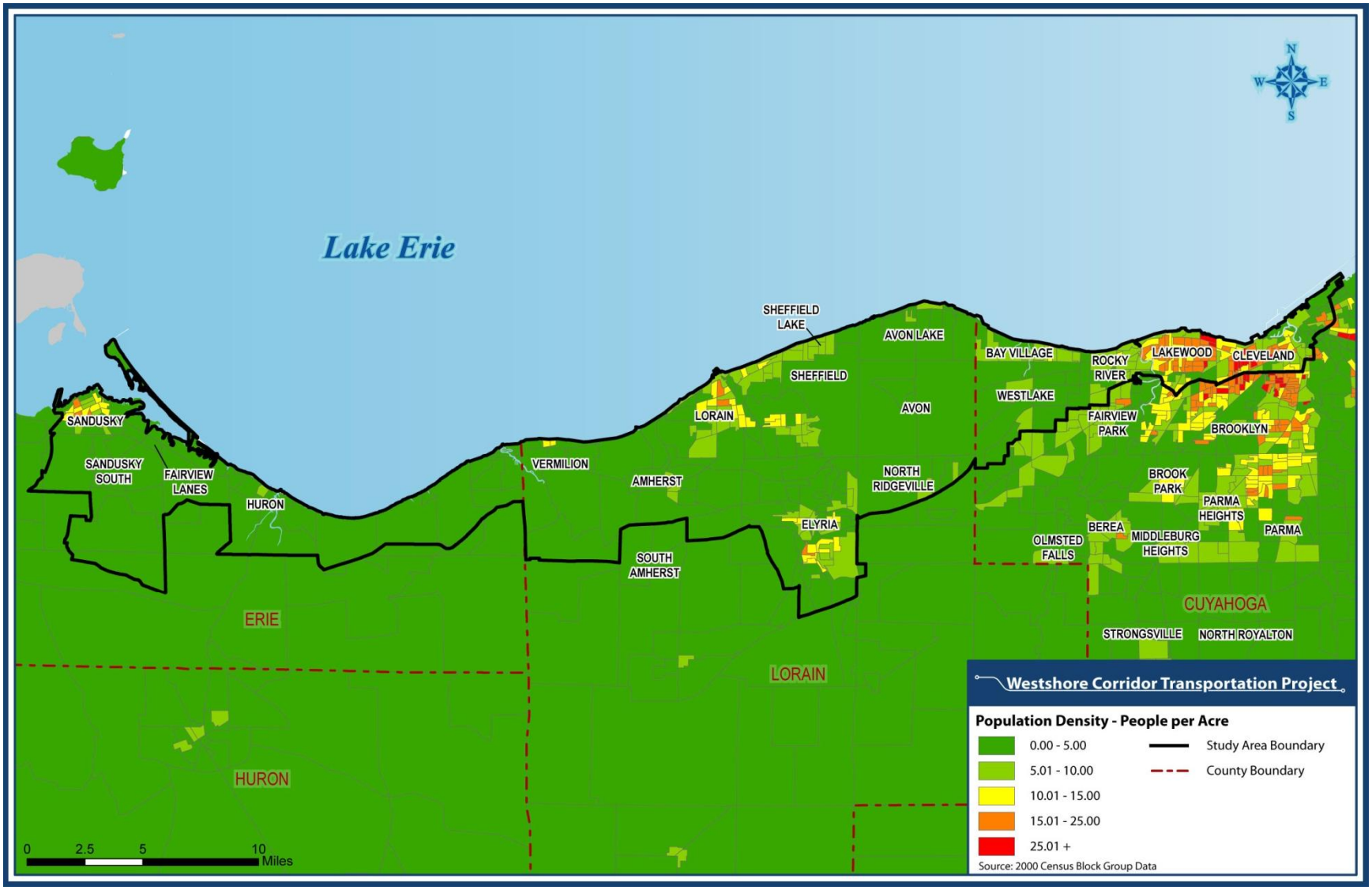
A map of population density in people per acre by census block group is provided in Figure A4.1. The map shows the highest densities are in Cleveland and Lakewood and tend to decrease moving from east to west, although there are small pockets of relatively high population density throughout the corridor. Beyond Lakewood and Cleveland, three other cities have at least one block group above 10.0 people per acre: Sandusky, Lorain, and Elyria.

Table A4.2: Population Density by Municipality

Municipality	People per Acre
Cleveland	9.1
Lakewood	13.2
Rocky River	5.8
Westlake	3.1
Bay Village	3.5
North Ridgeville	1.5
Avon Lake	2.5
Avon	0.9
Sheffield Lake	5.8
Sheffield	0.4
Lorain	4.4
Elyria	4.4
Vermilion	1.6
Huron	1.6
Sandusky	2.0

Source: 2000 US Census

Figure A4.1: Population Density in Persons per Acre by US Census Block Group



Source: 2000 US Census

Household Income

Household income is an important determinant of transportation choice. Higher and middle income people are more likely to use commuter services like commuter rail or express bus services (because they are likely to both have a suburban or exurban residence and to work in the downtown area) than other segments of the population, while lower income people are more likely than others to use local bus service. Household income by municipality is shown in Table A4.3. The data is from the 2000 US Census and is in 1999 dollars. The city of Cleveland has the lowest median household income at $25,928. Bay Village has the highest median household income at $70,397.

Figure A4.2 maps the median household income by census block group. In general terms, incomes are lowest in Cleveland and increase moving west into the western Cuyahoga and eastern Lorain suburbs. The core cities of Lorain, Elyria, and Sandusky have lower median household incomes than the surrounding new growth suburbs.

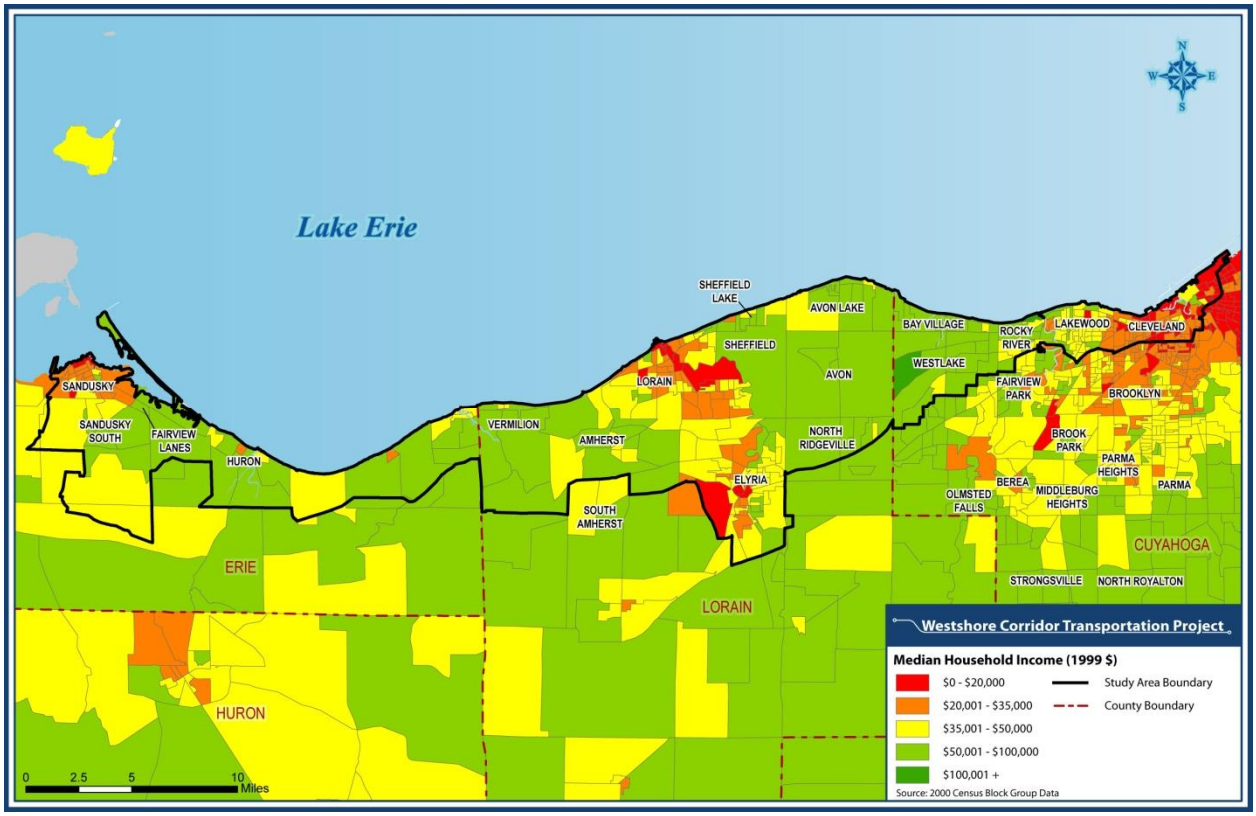
This trend matches closely with the population density of the cities in the study area. Specifically, the higher the population density in a city, then the household income is usually low.

Table A4.3: Median Household Income by Municipality

	Median HH Income (1999$)
Cleveland	$25,928
Lakewood	$40,527
Rocky River	$51,636
Westlake	$64,963
Bay Village	$70,397
North Ridgeville	$54,482
Avon Lake	$65,988
Avon	$66,747
Sheffield Lake	$48,984
Sheffield	$59,816
Lorain	$33,917
Elyria	$38,156
Vermilion	$49,926
Huron	$52,289
Sandusky	$31,133

Source: 2000 US Census

Figure A4.2: 1999 Median Household Income by Census Block Group



Source: 2000 US Census

Race

It is a well documented fact that members of racial minority groups tend to use various types of public transit services more frequently than whites, regardless of income level, and for reasons that are not well understood,. The racial makeup of the study area is detailed in Table A4.4. Three columns show the percent white, percent African-American, and percent other within each municipality in the study area. Cleveland has the highest percentage of African-Americans (51.0%) of any municipality in the study area and is the only city that has a non-white majority. Vermilion has the highest percentage of whites, which make up 98.1% of the total population. Lorain has the largest percentage of "other" races (14.4%), which is due mostly to that city's relatively large Hispanic population.

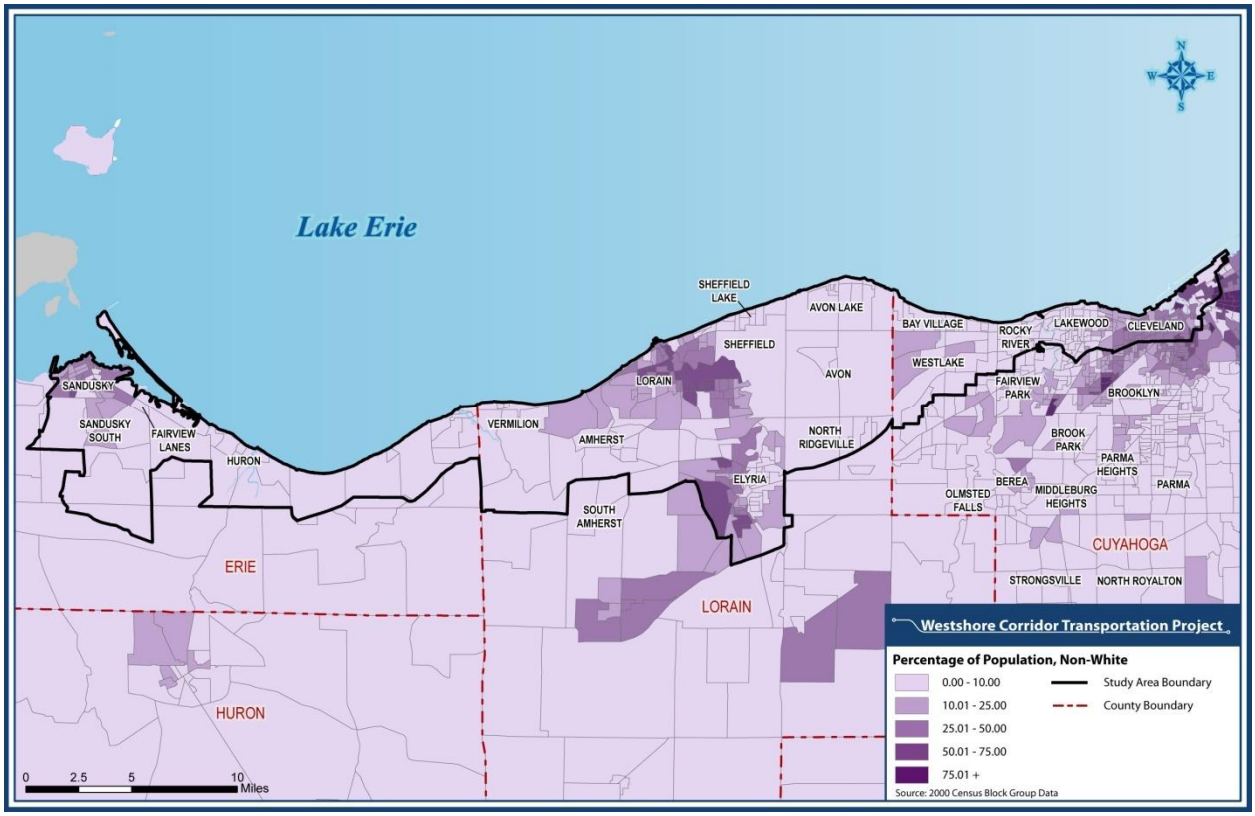
The non-white population by census block is mapped in Figure A4.3. The cities of Cleveland, Lorain, Elyria, and Sandusky show the largest percentages of non-white population.

Table A4.4: Percent Race by Municipality

	Percent White	Percent African American	Percent Other*
Cleveland	41.5%	51.0%	7.5%
Lakewood	93.1%	2.0%	5.0%
Rocky River	96.8%	0.4%	2.8%
Westlake	92.9%	0.9%	6.1%
Bay Village	98.0%	0.3%	1.7%
North Ridgeville	96.4%	0.9%	2.8%
Avon Lake	97.3%	0.5%	2.2%
Avon	97.0%	0.7%	2.3%
Sheffield Lake	90.9%	4.3%	4.8%
Sheffield	96.7%	1.0%	2.4%
Lorain	69.7%	15.9%	14.4%
Elyria	81.3%	14.2%	4.5%
Vermilion	98.1%	0.2%	1.7%
Huron	97.4%	0.7%	1.9%
Sandusky	74.5%	21.1%	4.4%

*Other includes American Indian, Asian, Hawaiian, Other, or those reporting themselves as "two or more races"
Source: 2000 US Census

Figure A4.3: Non-White Population by Census Block Group



Source: 2000 US Census

Population by Age

Age also can be a determinant of transit use. Teens and college-aged adults are more likely to use transit than the general population. Elderly people, who may be unable to drive or to have lower incomes, often also use transit at levels higher than the general population, although elderly people also are less likely to have jobs and to therefore make a daily commuting trip. Age statistics for each municipality is shown in Table A4.5, including percent under 18, 18-64, and 65 plus. Cleveland has the lowest median age within the study area, with a median age of just 33.0.

Avon Lake has the highest percentage of population under 18 in the study area, representing 28.9% of that city's population. This indicates that Avon Lake is a community with many families with school-age children.

Lakewood has the highest percentage of adults between 18 and 64, representing 66.8% of the city's population. Lakewood has many apartments with small households, and a population that is high in younger, childless adults.

Rocky River has the highest percentage of adults over 65, representing 24.2% of that city's population.

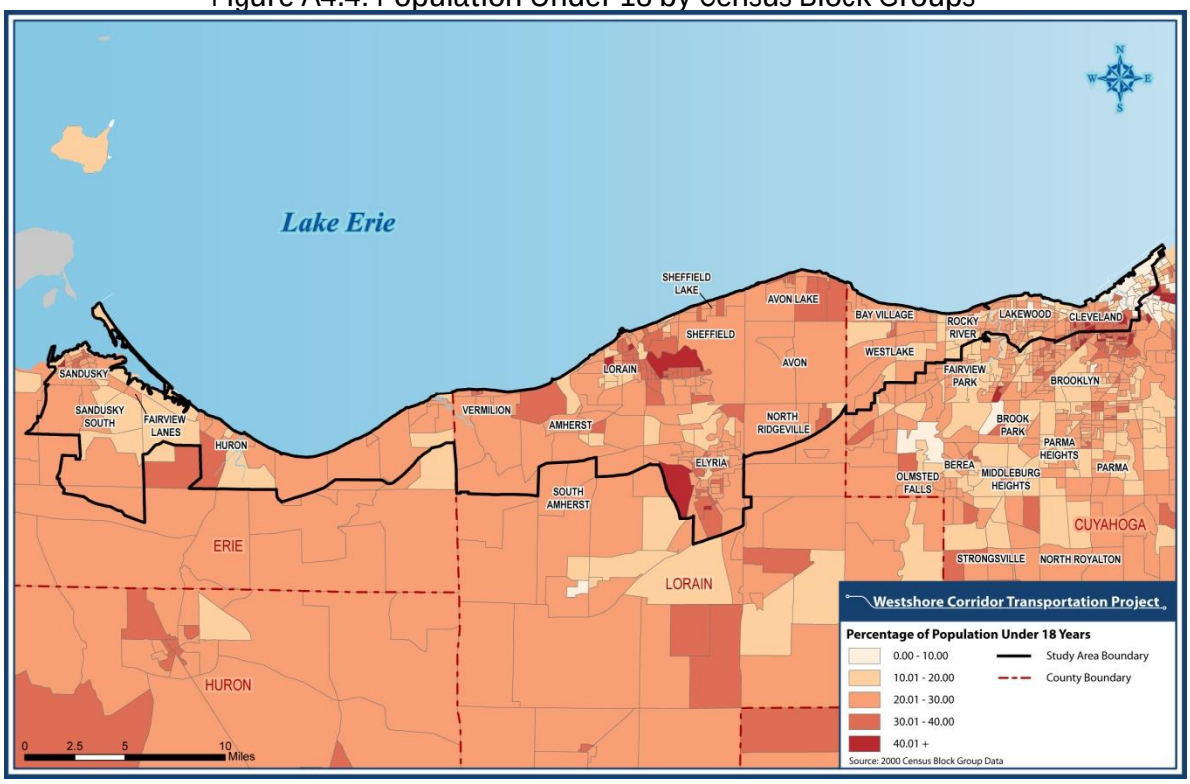
Figures A4.4 and A4.5 show percent under 18 and percent over 65 by census block.

Table A4.5: Population by Age

Municipality	Median Age	Percent Under 18	Percent 18-64	Percent 65 and Older
Cleveland	33.0	28.5%	59.0%	12.5%
Lakewood	34.2	21.0%	66.8%	12.2%
Rocky River	44.2	20.9%	54.8%	24.2%
Westlake	42.0	22.8%	59.0%	18.2%
Bay Village	41.1	25.9%	59.7%	14.4%
North Ridgeville	38.1	24.4%	64.9%	10.7%
Avon Lake	38.4	28.9%	59.5%	11.6%
Avon	37.6	27.6%	60.0%	12.4%
Sheffield Lake	38.8	26.3%	62.1%	11.6%
Sheffield	35.8	26.5%	64.2%	9.3%
Lorain	34.4	28.3%	57.7%	14.0%
Elyria	34.8	26.6%	60.5%	13.0%
Vermilion	38.7	25.3%	62.0%	12.6%
Huron	39.3	25.0%	59.8%	15.2%
Sandusky	36.2	25.8%	59.1%	15.1%

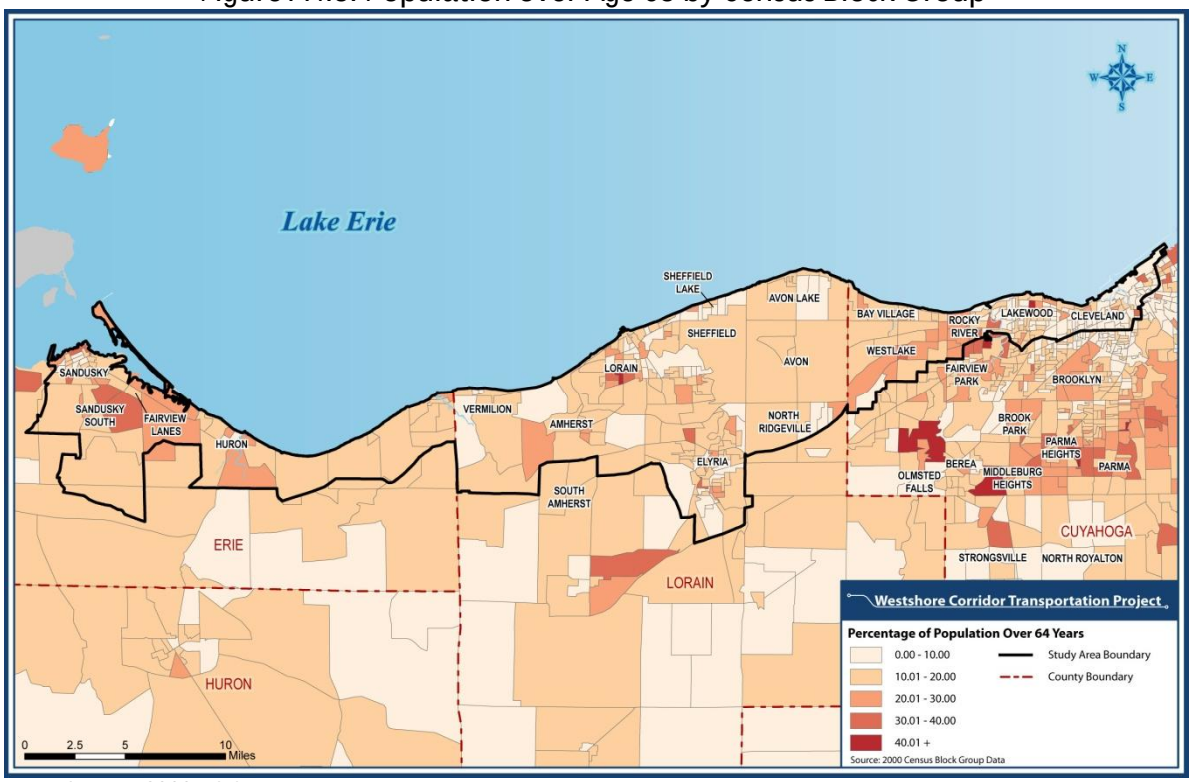
Source: 2000 US Census

Figure A4.4: Population Under 18 by Census Block Groups



Source: 2000 US Census

Figure A4.5: Population over Age 65 by Census Block Group



Source: 2000 US Census

Housing

Housing statistics by municipality are shown in Table A4.6. Bay Village has the highest percentage of occupied housing units, 97.5% of total units. Huron has the lowest percentage of occupied housing units, with 86.5% of total units occupied. It is important to note that this information is from the year 2000 Census, and does not take into consideration the housing crisis that began in the Cleveland area in 2006, or the recession that began in 2008, both of which have radically changed housing and housing occupancy patterns in the region. Detailed information on this subject that covers the entire corridor is not available.

Avon has the largest average household size, 2.72, which is a good indicator of that community's large number of single family homes occupied by young families with children. The surrounding suburbs of Avon Lake, Sheffield, and North Ridgeville have similar average household sizes. Lakewood has the lowest average household size, 2.09, which shows the influence of its many apartments and smaller dwellings on household size.

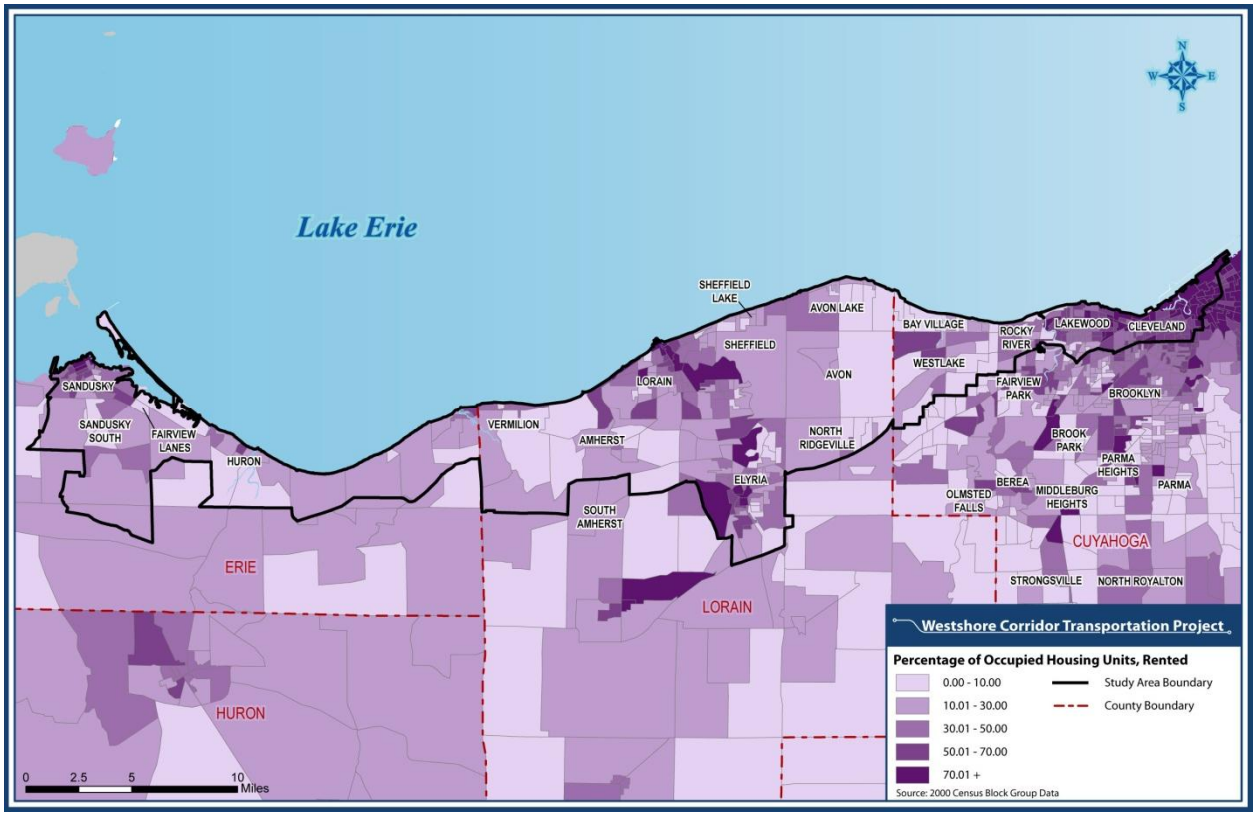
Table A4.6: Housing Statistics by Municipality

Municipality	Total Housing Units	Percent Occupied	Average HH Size
Cleveland	215,856	88.3%	2.44
Lakewood	28,416	93.9%	2.09
Rocky River	10,166	95.5%	2.11
Westlake	13,648	94.0%	2.37
Bay Village	6,401	97.5%	2.55
North Ridgeville	8,587	97.3%	2.65
Avon Lake	6,934	96.8%	2.70
Avon	4,291	95.3%	2.72
Sheffield Lake	1,147	94.9%	2.71
Sheffield	3,776	92.6%	2.68
Lorain	28,231	93.6%	2.57
Elyria	23,841	94.0%	2.46
Vermilion	4,713	90.3%	2.54
Huron	3,832	86.5%	2.37
Sandusky	13,323	89.0%	2.31

Source: 2000 US Census

Figure A4.6 shows the percentage of rental household units by census block group through the WCTP study area. In general, rentals are highest in Cleveland and Lakewood and drop moving west into the suburbs. The percentage of rentals increases moving west in Lorain, Elyria, and then Sandusky. The percentage of rentals is closely correlated to low household income.

Figure A4.6: Percent Rental Occupied Housing Units by Census Block Group



Source: 2000 US Census

A.2 Employment

Employment data by municipality was collected from the US Census 2007 Economic Census. The only community within the study area not included in the 2007 census is Sheffield, and this may be because it contains so few businesses that it would be impossible to obscure the identities of specific workplaces.

The data collected is categorized into industry type. Industry types collected in the census include:

- Manufacturing
- Retail trade
- Information
- Real estate
- Professional, scientific, & technical services
- Administrative & support
- Educational services
- Health care

- Arts & entertainment
- Accommodation & food services
- Other services

Employers by Sector

Table A4.7 shows the number of employers by municipality and industry type. Note that for each municipality the numbers shown are for the *entire* municipality. Cleveland, being the largest city within the study area, leads in the number of employers in every single category. Interestingly, Westlake has the second highest number of establishments despite only being the fifth largest city by population in the study area.

Retail has the largest number of establishments, accounting for 18.2% of all employers within the study area. Professional, scientific, & technical services is second, accounting for an additional 15.9% of the total.

Employment by Sector

Table A4.8 shows the number of employees by sector by municipality and industry type. Again Cleveland leads the way, with 178,389 jobs within its boundaries (again, this includes the entire City of Cleveland, of which only a small part is located in the Westshore Corridor study area). Elyria has the second greatest number of jobs, 20,783, despite being the fourth largest municipality in terms of population.

The industry with the greatest number of employees is health care, which accounts for 31.6% of all jobs in municipalities within the study area. Ranking second is manufacturing, which accounts for 17.0% of all jobs within the study area municipalities.

Table A4.7: Employers by Sector and Municipality

Number of Establishments

	Manufacturing	Retail trade	Information	Real estate	Professional, scientific, & technical services	Administrative & support	Educational services	Health care	Arts & entertainment	Accommodation & food services	Other services	Total by Municipality
Cleveland	922	1,314	198	361	1,267	515	73	829	144	995	835	7,453
Lakewood	35	124	16	56	116	56	9	144	18	114	69	757
Rocky River		92	11	40	116	40	6	82	11	67	71	536
Westlake	52	159	36	67	221	93	15	244	11	101	77	1,076
Bay Village		17	3	7	42	14	8	20	5	13	16	145
North Ridgeville	41	64	7	16	44	50	1	34	8	40	48	353
Avon Lake	25	34	4	11	51	28	9	45	6	39	30	282
Avon	30	82	5	13	51	33	3	59	12	54	46	388
Sheffield Lake		13		5	6	1	1	6	1	10	5	48
Sheffield												0
Lorain	52	123	8	48	77	52	7	146	18	84	100	715
Elyria	108	257	18	54	78	54	3	140	11	139	101	963
Vermilion		49	3	13	16	12	1	23	15	28	24	184
Huron	12	20	3	10	20	6	1	14	7	26	14	133
Sandusky	47	121	18	33	55	31	5	90	22	82	54	558
Total by sector ===>	1324	2469	330	734	2160	985	142	1876	289	1792	1490	

Source: 2007 US Economic Census

Table A4.8: Employment by Sector and Municipality

	Manufacturing	Retail trade	Information	Real estate	Professional, scientific, & technical services	Administrative & support	Educational services	Health care	Arts & entertainment	Accommodation & food services	Other services	Total by Municipality
Cleveland	26,961	10,259	6,455	5,548	18,792	17,829	1,375	63,632	5,390	16,038	6,110	178,389
Lakewood	535	1,273	186	189	424	918	91	3,072	285	1,420	431	8,824
Rocky River		1,459	83	128	505	296	16	811		1,212	446	4,956
Westlake	1,764	2,544	1,194	925	1,618	1,335	104	4,936		2,665	676	17,761
Bay Village		314		14	138	27	30	341	13	94	87	1,058
North Ridgeville	1,325	885	15	52	224	317			74	548	184	3,624
Avon Lake	3,387	522	19	36	253	168	34	305		507	200	5,431
Avon	1,512	1,852	14	29	240	682	12	1,044		954	243	6,582
Sheffield Lake		149		9				16		92	38	304
Sheffield												0
Lorain	2,517	1,662	383	166	372	1,183		4,335	138	1,044	725	12,525
Elyria	5,650	4,814	651	334	504	1,275		4,144	109	2,501	756	20,738
Vermilion		556		49	40	19		412	116	403	101	1,696
Huron	1,107	208		22	184				111	365	59	2,056
Sandusky	1,805	1,424	346	132	306	392		3,364		1,116	285	9,170
Total by sector ===>	46,563	27,921	9,346	7,633	23,600	24,441	1,662	86,412	6,236	28,959	10,341	

Source: 2007 US Economic Census

Combining the information on establishment and employees provides us with the average number of employees per establishment, shown in Table A4.9. Health care and manufacturing have the highest average number of employees per establishment at 46.1 and 35.2, respectively. This average, of course, is balancing both hospitals with hundreds of employees and medical offices with only a handful. Retail, despite having a large number of establishments, typically employs few people at each establishment.

Table A4.9: Employees per Establishment in Study Area

	Manufacturing	Retail trade	Information	Real estate	Professional, scientific, & technical services	Administrative & support	Educational services	Health care	Arts & entertainment	Accommodation & food services	Other services
Employees per Establishment	35.2	11.3	28.3	10.4	10.9	24.8	11.7	46.1	21.6	16.2	6.9

Planning and Zoning Review

CITY OF CLEVELAND

Information: http://planning.city.cleveland.oh.us/

Planning Review

Several plans have been adopted that affect any proposed transit investments in the Cleveland west shore neighborhoods, and are listed below.

- Connecting Cleveland 2020 Citywide Plan (Cleveland's master plan)
- Cleveland Waterfront District Plan

Subarea plans that directly relate to transit/pedestrian improvements and involve the KSU UDC are summarized in further detail here:

Cudell Commons TOD Master Plan – Cleveland

In previous UDC projects (Detroit Avenue Land Use Study and Cudell-Edgewater Master Plan), the area within a five-minute walk of the West Boulevard-Cudell rapid transit station was identified for further study based on transit-oriented development principles. Building on existing and proposed residential development in the area, the UDC has studied pedestrian and open-space improvements to calm traffic on Detroit Avenue and West Boulevard and make the transit station more accessible. Proposed improvements include narrowing Detroit Avenue, and these improvements are currently being modeled and tested by NOACA (Northeast Ohio Areawide Coordinating Agency). (date of this posting unknown)

Clifton Boulevard Streetscape Enhancement – Lakewood and Cleveland

Clifton Boulevard is a major through street running from the far West Side of Cleveland to the western border of Lakewood. The Cleveland portion of the street contains a somewhat disjointed mix of uses, but it is the commercial heart of the Edgewater neighborhood. In Lakewood, the boulevard is mostly residential and is lined with stately trees, making it one of the region's finest thoroughfares.

As part of the "Clifton Boulevard Streetscape Enhancement", Clifton in Cleveland will be resurfaced. Clifton in Lakewood has already been repaved. GCRTA is planning transit amenities in this corridor as well, including new shelters, bus pads, and streetscape furniture.

Zoning Review

City of Cleveland Zoning Code has not been comprehensively updated, however, the City has adopted several zoning code provisions in recent years that are supportive of transit usage and walkability principles. Most significant of these is the mixed use zoning for the Euclid Avenue BRT corridor that provides for mixed uses and increased density to support the usage of the Health Corridor Line.

Reference: PART THREE — ZONING CODE

Title VII — Zoning Code
Chapter 344 — Midtown Mixed-Use District
http://planning.city.cleveland.oh.us/

CITY OF LAKEWOOD

Information: http://www.onelakewood.com

Planning Review
The City of Lakewood's master plan is the Lakewood Community Vision (2010).

Subarea plans that are relevant to the current WCTP include:

- Clifton Boulevard Streetscape Enhancement (underway, described above)
- Detroit Streetscape Study 2008 (affect St. Charles and Belle streets, downtown)
- Birdtown Action Plan 2010
- Outdoor Dining Design Guidelines

Zoning Review
The City of Lakewood's Zoning Code contains a section that permits using mixed use zoning as an overlay alternative to the underlying zoning district in certain commercial and higher density residential areas. This would be applicable to areas that might be considered for additional transit investment in the city of Lakewood.

Location of a Mixed Use Overlay District is limited to C1 Office, C2 Retail, C3 General Business, C4 Public School District or the MH, Multiple-Family, High Density Residential District.

Reference: CHAPTER 1135:
MIXED USE OVERLAY DISTRICT
1135.01 PURPOSE
1135.02 LIMITATIONS ON FLEXIBILITY OF MIXED USE OVERLAY
1135.04 LOCATION OF MIXED USE OVERLAY DISTRICT

CITY OF ROCKY RIVER

Information: http://www.rrcity.com

Planning Review
The City of Rocky River has a new comprehensive plan that embraces concepts of mixed use and higher density in commercial areas of the city. The general direction of the plan is highly supportive of the development concepts that are needed to facilitate transit-supportive

development. In addition, the NEOrail study assessed station feasibility at Depot Street in Rocky River.

Zoning Review

The City of Rocky River has recently developed a new Zoning Code that would be supportive of the recently adopted master plan for the city. However, the new Code has not yet been adopted by its City Council. The existing code does not contain the type of language that supports mixed use, high density development. The proposed code provides for dense, mixed use development in the downtown area and is summarized below.

Reference: Chapter 1165 (DRAFT, not adopted)
Central Business Mixed Use District Regulations
This section applies generally to the area around the Depot St./Detroit Rd. area known as "Old Rocky River."

CITY OF BAY VILLAGE

Information: http://planning.co.cuyahoga.oh.us/documents/

Planning Review

The City of Bay Village developed a master plan in 1999 (not adopted by its Council) and has been discussing an update of that Plan around concepts of sustainability; however, that project has not been committed to. KSU's UDC was retained several years ago to provide the city with recommendations for improving its commercial areas; the recommendations includes mixed use, higher density development for the center of the community and its other retail center at Dover Center /E. Oviatt (adjacent to the Norfolk Southern railroad tracks).

The NEOrail study assessed station feasibility at Dover Center Rd.

Zoning Review

The City was hired the Cuyahoga County Planning Commission to develop a set of new zoning regulations to implement the master plan in 1999, however, a comprehensive zoning code update has not been completed. The Dover/E. Oviatt commercial area has seen some addition of retail/office activity but remains a car-oriented, lower density commercial environment. The city's Zoning Code can be found at:
http://www.cityofbayvillage.com/government/ordinances.cfm

CITY OF WESTLAKE

Information: http://www.cityofwestlake.org

Planning Review

The City has a plan in place called the "2004 Guide Plan" in draft form. This plan proposes to rezone the RTA park-n-ride area on Columbia at I-90 to public use and it also provides a marker for a transit station at Bassett and the NS railroad tracks. However, it remains in draft form. The City has adopted various planning documents relating to Crocker Park and presumably other mixed use development, including a Mixed Use Design Manual found at http://www.cityofwestlake.org/departments/planning.aspx#downloads

Zoning Review

The future plan calls for Mixed Use Planned Development in various areas. The zoning provision that exists to implement this is in: Chapter 1212: Planned Unit Development.

City of Westlake Zoning Code: http://www.cityofwestlake.org/citygovernment/co.aspx
City of Westlake Zoning map: http://www.cityofwestlake.org/departments/planning.aspx

CITY OF AVON LAKE

Planning Review

Not clear on status of comprehensive plan for the city.

Zoning Review

There is no reference to a Mixed Use Development zoning classification in this code. The Planned Unit Development regulations focus on residential uses and at lower density.
The area near the Norfolk Southern railroad at Avon-Belden Rd. and the Avon Lake southern border is zoned for various uses including industrial, commercial and multi-family housing (all separated from each other).

Zoning Code: http://amlegal.com
Zoning Map: http://www.avonlake.org/EZ_DynPage_Detail.aspx?ID=392&d=21

CITY OF AVON

Information: http://www.cityofavon.com/EZ_DispLib_Item.aspx?ID=68&d=20

Planning Review
The City has recently updated its Master Plan but appears to have produced a map as an update document which is found at the above site. The Zoning Code references a master plan update adopted in 2007.

Zoning Review
For this project, the focus for Avon is the northern border with Avon Lake adjacent to the I-90 and Norfolk Southern Rail facilities. This area appears to be zoned general or light industrial with some suggestion of the application of a commercial/industrial overlay in this area which was not found in the Zoning Code (not likely adopted). There is no reference to residential being permitted in these districts. C-3 the French Creek Historic area permits residential above commercial uses.

Zoning Code: http://www.amlegal.com
Zoning Map: http://www.cityofavon.com/EZ_DispLib_Item.aspx?ID=68&d=20

CITY OF NORTH RIDGEVILLE

Planning Review
The City's 2009 Master Plan can be found at: http://www.nridgeville.org/info/masterplan.asp
There is no discussion of a mixed use district; there is a discussion of a historic district.

Zoning Review
There is no reference to Mixed Use zoning in the City of North Ridgeville's Zoning Code, however, its Central Business District zoning allows commercial uses by right and residential uses as "Conditional." This is a way to provide for mixed use development in this District.

Zoning Code: http://www.conwaygreene.com
Zoning Map: http://www.nridgeville.org/businesses/zoning.asp

CITY OF LORAIN

Planning Review
The City has not completed a comprehensive master plan recently. However it has produced urban renewal plans for:

- Colorado Avenue Industrial Area Urban Renewal Plan
- Washington Avenue Urban Renewal Plan

- Central Lorain Urban Renewal Plan
- Lighthouse Village Urban Renewal Plan
- Lorain West Urban Renewal Plan
- South Lorain Urban Renewal Plan
- Lakefront Urban Renewal Plan

The Urban Renewal designation provides several benefits to the City and the area designated. It allows the City to issue bonds for public improvements, property acquisition, demolition, environmental clean-up and other activities that are consistent with the plan. The plan is formally adopted by both the Planning Commission and City Council and is a document that guides the redevelopment of the plan area, providing insight to the private development community of the desires of the community for the specific area. It provides additional review requirements to ensure that developments that occur within the plan area are consistent with the plan and require that the developer enter into a development agreement with the City.

Zoning Review

There is no actual mixed use zoning designation in the City of Lorain Zoning Code. Chapter 1169 permits commercial, residential and public space uses among others which could be interpreted as mixing uses, but the parameters of the development is not clarified as well under this type of zoning. The downtown area is covered by Chapter 1169 Central Business District zoning and any proposed development there is subject to review by a Design Committee which is where guidance could be provided to proposed development concepts.

Zoning Code: http://www.conwaygreene.com
Zoning Map: not online

Reference: CHAPTER 1169
B-4 Central Business District

CITY OF ELYRIA

Planning Review

2015 Master Plan can be found at http://www.ci.elyria.oh.us/2015EPlan.html

The plan provides general policy recommendations and strategies across several areas, including several strategies relating to “Enhance Business Districts and Economic Development Capacity.”

Zoning Review
Mixed use and higher density development is encouraged in the downtown area of the City of Elyria in Chapter 1158.

Zoning Code: http://www.amlegal.com/library/oh/elyria.shtml
Zoning Map: http://www.ci.elyria.oh.us/zoning_map.html

Reference: CHAPTER 1158
B-D Business-Downtown District

It is the purpose of the B-D Business-Downtown District to encourage the functional grouping of those commercial, residential and accessory establishments that encourage pedestrian movement and the preservation of the historic character of Downtown Elyria.

SHEFFIELD VILLAGE

Planning Review
I did not see reference to a Master Plan on the Village's website. There is reference to a downtown Sheffield Village revitalization planning completed in 2007 at: www.noaca.org/shopdistrict.pdf

Zoning Review
Zoning Map: http://www.sheffieldvillage.com/building.htm
Zoning Code: http://www.sheffieldvillage.com/building.htm

CITY OF SHEFFIELD LAKE

Planning Review
There is no online information about a master plan for the City. The City's website is: http://www.sheffieldlake.net/

Zoning Review
Zoning code for the Village was not found online.

CITY OF VERMILION

Planning Review
No reference to a city master plan was found.

Zoning Review
The City of Vermilion Zoning Code contains a very flexible version of "Planned Unit Development" or "PUD" zoning classification that permits the integration of residential, commercial and industrial facilities in a preplanned environment. This designation provides the opportunity to zone a mixed use development in most areas of the city if approval is secured. The PUD may be applied to any residential, commercial or industrial developments subject to the approval of City Council. Residential, commercial, manufacturing, public and quasi-public uses may be separate or combined in PUDs, provided that the proposed uses will not adversely impact upon adjacent property or the public health, safety and general welfare and that the location of uses in the PUD is specified in the final development plan. There is no minimum area required for a PUD.

Zoning Code: http://www.conwaygreene.com
Zoning Map: http://vermilionohionews.com/

CITY OF HURON

Planning Review
I have not been able to find online reference to a recent city master plan document. There is a master plan reference in the Zoning Code and there was a discussion about updating the plan at Council level in 2008 working with Erie County.

Zoning Review
There does not appear to be any mixed use zoning in the city's code. The Downtown business district does not reference residential as a permitted or conditional use either, it only allows business type uses. There is a provision for Planned Use Developments and some overlay zoning district but none of these appear to be geared to accomplishing a mixed use district.

Zoning code: http://www.cityofhuron.org/huron/charter-and-codified-ordinances.html
Zoning map: http://www.cityofhuron.org/huron/building-department.html

CITY OF SANDUSKY

Information: http://www.ci.sandusky.oh.us/community-dev/pz-comp-plan.htm

Planning Review

The City of Sandusky has a relatively up to date master plan to guide development in the community (2008 update). For the central area of the city (which contains Sandusky's downtown and working waterfront, its older industrial areas, a significant portion of its neighborhoods and several major public facilities), the land use recommendations seek to focus future public and private efforts to maintain stability and encourage infill development, redevelopment and reinvestment as priorities. Proposed development in the Downtown Design Review District is subject to the regulations of the District's Design Review Board.

NASA Glenn Master Plan Investigation – east of Sandusky, Ohio

KSU's UDC has worked with NASA Glenn as it has proposed the development of an overall master plan for the orderly management and future development of real estate property assets including land, facilities, resources, and infrastructure at both its Lewis Field campus in Cleveland and the *Plum Brook Station in Sandusky*. The purpose of the Master Plan is to sustain NASA Glenn Research Station's contribution to the overall NASA mission and to consider the re-use of land that is no longer needed for that mission. The UDC is acting as the local consultant to this multi-year process.

Plum Brook Station (located 50 miles west of Cleveland)

Plum Brook Station is a remote test installation site for the NASA Glenn Research Center, Cleveland, Ohio which is located in Sandusky, Ohio. Plum Brook Station offers four large, world-class facilities for space technology and capability development on a 6,400-acre installation (for government and industry programs through interagency or Space Act agreements). Plum Brook employs a minimal NASA civil service staff that accommodates outside contractors working on experiments and tests.

Zoning Review

The City of Sandusky's Zoning Code provides for a mix of uses and higher densities in its Chapter 1133 Downtown Business District which was adopted recently.

Zoning Code: http://www.conwaygreene.com
Zoning map: http://www.ci.sandusky.oh.us/

Reference: 1133.07 DOWNTOWN BUSINESS DISTRICT; INTENT.

The purpose of this district is to allow for a variety of mixed uses including business, commercial, and residential. This district was created to specifically address downtown, water-related, residential and mixed-use activities. This district shall promote density of uses and the

increase of tourism related activities in the downtown area in general. The goal of these regulations is to maintain continuity in the development of the land and implementation of the goals of the Port Development Plan, while preserving the character of downtown.

Westshore Corridor Transportation Project

West Shore Corridor Alternatives Analysis Study

Chapter 5 - Appendix

Scoring of Alternatives

June 2013

Appendix A5 – Scoring of Alternatives

The following tables are the individual scores of the 32 alternatives considered in the initial screening.

Table A5-1: Goal 1 Screening

Corridor Number	Western Terminal	Eastern Terminal	Alignment	Mode	Transfer to Red Line	Transfer to #246	Speed of trip	Commuter Amenities	Park and Ride potential	Diversity of Transit Options	Corridor Zero Vehicle Households	Corridor Minority Households	Corridor Low Income Households	Access to downtown Cleveland
29	Lorain (Black River Landing)	Tower City Center	Nickel Plate Line	Commuter Rail			2	5	3	2	3	3	3	5
31	Vermilion	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Rail	Y		2	5	3	2	2	1	1	0
11	Lorain (Black River Landing)	Public Square/STI Transit Center	OH-2/I-90/W. 25th/Superior	Commuter Bus			5	3	5	1	2	2	2	5
13	Lorain (Black River Landing)	Lakefront Station*	OH-2/I-90/W. 117th/Clifton/Shoreway	Commuter Bus			5	3	5	1	3	3	2	3
18	Lorain (Black River Landing)	Westlake Park-n-Ride	OH-2/I-90	Commuter Bus	Y		5	3	5	1	2	3	3	0
32	Lorain (Black River Landing)	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Rail	Y		2	5	3	2	3	2	2	0
12	Downtown Sandusky	Lakefront Station*	OH-2/I-90/W. 117th/Clifton/Shoreway	Commuter Bus			5	3	5	1	2	2	2	3
15	Downtown Sandusky	W. 117th Rapid	OH-2/I-90/W. 117th	Commuter Bus	Y		5	3	5	1	3	3	3	0
17	Downtown Sandusky	Westlake Park-n-Ride	OH-2/I-90	Commuter Bus		Y	5	3	5	1	2	2	3	0
10	Downtown Sandusky	Public Square/STI Transit Center	OH-2/I-90/W. 25th/Superior	Commuter Bus			5	3	5	1	1	3	3	5
26	Lorain (Black River Landing)	Lakefront Station*	Nickel Plate Line	Commuter Rail			2	5	3	2	1	1	1	3
14	Downtown Sandusky	Triskett Rapid	OH-2/I-90/Warren/Triskett	Commuter Bus	Y		5	3	5	1	1	3	3	0
16	Downtown Sandusky	West Blvd-Cudell Rapid	OH-2/I-90/W. 117th/Detroit	Commuter Bus	Y		5	3	5	1	1	2	2	0
25	Vermilion	Lakefront Station*	Nickel Plate Line	Commuter Rail			2	5	3	2	1	0	0	3
28	Vermilion	Tower City Center	Nickel Plate Line	Commuter Rail			2	5	3	2	0	0	0	5
30	Sandusky Amtrak	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Rail	Y		2	5	3	2	0	0	0	0
3	Downtown Sandusky	Public Square/STI Transit Center	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus			0	0	0	3	3	3	3	5
5	Lorain (Black River Landing)	Public Square/STI Transit Center	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus			0	0	0	3	3	1	2	5
21	Lorain (Black River Landing)	West Blvd-Cudell Rapid	OH-2/I-90/W. 117th/Detroit	Commuter Bus	Y		5	3	5	1	1	0	0	0
20	Lorain (Black River Landing)	W. 117th Rapid	OH-2/I-90/W. 117th	Commuter Bus	Y		5	3	5	1	0	1	1	0
22	Vermilion	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Bus	Y		5	3	5	1	1	2	1	0
24	Sandusky Amtrak	Lakefront Station*	Nickel Plate Line	Commuter Rail			2	5	3	2	0	0	1	3
1	Downtown Sandusky	Lakefront Station*	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus			0	0	0	2	2	2	2	3
4	Downtown Sandusky	Public Square/STI Transit Center	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus			0	0	0	2	2	0	1	5
19	Lorain (Black River Landing)	Triskett Rapid	OH-2/I-90/Warren/Triskett	Commuter Bus	Y		5	3	5	1	0	0	0	0
27	Sandusky Amtrak	Tower City Center	Nickel Plate Line	Commuter Rail			2	5	3	2	0	0	1	5
23	Lorain (Black River Landing)	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Rail	Y		5	3	5	1	3	1	2	0
2	Downtown Sandusky	Lakefront Station*	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus			0	0	0	2	1	0	0	3
9	Lorain (Black River Landing)	Westlake Park-n-Ride	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus		Y	0	0	0	2	0	0	0	0
8	Downtown Sandusky	Westlake Park-n-Ride	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus		Y	2	1	0	3	0	1	0	0
6	Downtown Sandusky	W. 117th Rapid	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus	Y		0	0	0	0	1	3	2	0
7	Downtown Sandusky	West Blvd-Cudell Rapid	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	Y		2	1	0	0	1	3	2	0

Corridor Number	Western Terminal	Eastern Terminal	Alignment	Mode	Transfer to Red Line	Transfer to #246	Access to downtown Lakewood	Access to downtown Rocky River	Access to downtown Bay Village	Access to downtown Lorain	Access to downtown Vermilion	Access to downtown Sandusky	Reverse Commute Options	Goal 1 Score
29	Lorain (Black River Landing)	Tower City Center	Nickel Plate Line	Commuter Rail			2	1	1	3	0	0	0	33
31	Vermilion	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Rail	Y		2	1	1	1	0	0	0	22
11	Lorain (Black River Landing)	Public Square/STI Transit Center	OH-2/I-90/W. 25th/Superior	Commuter Bus			0	0	0	3	0	0	1	29
13	Lorain (Black River Landing)	Lakefront Station*	OH-2/I-90/W. 117th/Clifton/Shoreway	Commuter Bus			0	0	0	3	0	0	1	29
18	Lorain (Black River Landing)	Westlake Park-n-Ride	OH-2/I-90	Commuter Bus		Y	0	0	0	3	0	0	1	26
32	Lorain (Black River Landing)	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Rail	Y		2	1	1	3	0	0	0	26
12	Downtown Sandusky	Lakefront Station*	OH-2/I-90/W. 117th/Clifton/Shoreway	Commuter Bus			0	0	0	2	1	3	1	30
15	Downtown Sandusky	W. 117th Rapid	OH-2/I-90/W. 117th	Commuter Bus			0	0	0	2	1	3	1	30
17	Downtown Sandusky	Westlake Park-n-Ride	OH-2/I-90	Commuter Bus		Y	0	0	0	2	1	3	1	28
10	Downtown Sandusky	Public Square/STI Transit Center	OH-2/I-90/W. 25th/Superior	Commuter Bus			0	0	0	2	1	3	1	33
26	Lorain (Black River Landing)	Lakefront Station*	Nickel Plate Line	Commuter Rail			2	1	1	3	0	0	0	25
14	Downtown Sandusky	Triskett Rapid	OH-2/I-90/Warren/Triskett	Commuter Bus	Y		0	0	0	2	1	3	1	28
16	Downtown Sandusky	West Blvd-Cudell Rapid	OH-2/I-90/W. 117th/Detroit	Commuter Bus	Y		0	0	0	2	1	3	1	26
25	Vermilion	Lakefront Station*	Nickel Plate Line	Commuter Rail			2	1	1	1	1	0	0	22
28	Vermilion	Tower City Center	Nickel Plate Line	Commuter Rail			2	1	1	1	1	0	0	23
30	Sandusky Amtrak	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Rail	Y		2	1	1	1	1	1	0	19
3	Downtown Sandusky	Public Square/STI Transit Center	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus			2	1	0	0	1	3	2	23
5	Lorain (Black River Landing)	Public Square/STI Transit Center	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus			0	0	0	3	0	0	2	16
21	Lorain (Black River Landing)	West Blvd-Cudell Rapid	OH-2/I-90/W. 117th/Detroit	Commuter Bus	Y		0	0	0	3	0	0	1	19
20	Lorain (Black River Landing)	W. 117th Rapid	OH-2/I-90/W. 117th	Commuter Bus	Y		0	0	0	3	0	0	1	20
22	Vermilion	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Bus	Y		2	1	1	2	1	0	1	26
24	Sandusky Amtrak	Lakefront Station*	Nickel Plate Line	Commuter Rail			2	1	1	1	1	1	0	23
1	Downtown Sandusky	Lakefront Station*	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus			2	1	0	0	1	3	2	18
4	Downtown Sandusky	Public Square/STI Transit Center	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus			0	0	0	3	1	3	2	17
19	Lorain (Black River Landing)	Triskett Rapid	OH-2/I-90/Warren/Triskett	Commuter Bus	Y		0	0	0	3	0	0	1	18
27	Sandusky Amtrak	Tower City Center	Nickel Plate Line	Commuter Rail			2	1	1	1	1	1	0	24
23	Lorain (Black River Landing)	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Bus	Y		2	1	1	3	0	0	1	28
2	Downtown Sandusky	Lakefront Station*	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus			0	0	0	3	1	3	2	13
9	Lorain (Black River Landing)	Westlake Park-n-Ride	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus		Y	2	1	0	3	0	0	2	10
8	Downtown Sandusky	Westlake Park-n-Ride	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus		Y	2	1	0	0	1	3	2	11
6	Downtown Sandusky	W. 117th Rapid	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus	Y		0	0	0	3	1	3	2	9
7	Downtown Sandusky	West Blvd-Cudell Rapid	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	Y		2	1	0	0	1	3	2	9

Table A5-2: Goal 2 Screening

					Goal 2: Transit Oriented Land Use							
Corridor Number	Western Terminal	Eastern Terminal	Alignment	Mode	TOD Potential by Mode	TOD in Lakewood	TOD in Rocky River	TOD in Bay Village	TOD in Lorain	TOD in Vermilion	TOD in Sandusky	Goal 2 Score
29	Lorain (Black River Landing)	Tower City Center	Nickel Plate Line	Commuter Rail	5	2	1	1	2	0	0	11
31	Vermilion	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Rail	5	2	1	1	2	1	0	12
11	Lorain (Black River Landing)	PublicSquare/STJ Transit Center	OH-2/I-90/W. 25th/Superior	Commuter Bus	0	0	0	0	0	0	0	0
13	Lorain (Black River Landing)	Lakefront Station*	OH-2/I-90/W. 117th/Clifton/Shoreway	Commuter Bus	0	0	0	0	0	0	0	0
18	Lorain (Black River Landing)	Westlake Park-n-Ride	OH-2/I-90	Commuter Bus	0	0	0	0	0	0	0	0
32	Lorain (Black River Landing)	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Rail	5	2	1	1	2	0	0	11
12	Downtown Sandusky	Lakefront Station*	OH-2/I-90/W. 117th/Clifton/Shoreway	Commuter Bus	0	0	0	0	0	0	0	0
15	Downtown Sandusky	W. 117th Rapid	OH-2/I-90/W. 117th	Commuter Bus	0	0	0	0	0	0	0	0
17	Downtown Sandusky	Westlake Park-n-Ride	OH-2/I-90	Commuter Bus	0	0	0	0	0	0	0	0
10	Downtown Sandusky	PublicSquare/STJ Transit Center	OH-2/I-90/W. 25th/Superior	Commuter Bus	0	0	0	0	0	0	0	0
26	Lorain (Black River Landing)	Lakefront Station*	Nickel Plate Line	Commuter Rail	5	2	1	1	2	0	0	11
14	Downtown Sandusky	Triskett Rapid	OH-2/I-90/Warren/Triskett	Commuter Bus	0	0	0	0	0	0	0	0
16	Downtown Sandusky	West Blvd-Cudell Rapid	OH-2/I-90/W. 117th/Detroit	Commuter Bus	0	0	0	0	0	0	0	0
25	Vermilion	Lakefront Station*	Nickel Plate Line	Commuter Rail	5	2	1	1	2	1	0	12
28	Vermilion	Tower City Center	Nickel Plate Line	Commuter Rail	5	2	1	1	2	1	0	12
30	Sandusky Amtrak	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Rail	5	2	1	1	2	1	2	14
3	Downtown Sandusky	PublicSquare/STJ Transit Center	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	0	0	0	0	0	0	0	0
5	Lorain (Black River Landing)	PublicSquare/STJ Transit Center	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus	0	0	0	0	0	0	0	0
21	Lorain (Black River Landing)	West Blvd-Cudell Rapid	OH-2/I-90/W. 117th/Detroit	Commuter Bus	0	0	0	0	0	0	0	0
20	Lorain (Black River Landing)	W. 117th Rapid	OH-2/I-90/W. 117th	Commuter Bus	0	0	0	0	0	0	0	0
22	Vermilion	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Bus	0	0	0	0	0	0	0	0
24	Sandusky Amtrak	Lakefront Station*	Nickel Plate Line	Commuter Rail	5	2	1	1	2	1	2	14
1	Downtown Sandusky	Lakefront Station*	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	0	0	0	0	0	0	0	0
4	Downtown Sandusky	PublicSquare/STJ Transit Center	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus	0	0	0	0	0	0	0	0
19	Lorain (Black River Landing)	Triskett Rapid	OH-2/I-90/Warren/Triskett	Commuter Bus	0	0	0	0	0	0	0	0
27	Sandusky Amtrak	Tower City Center	Nickel Plate Line	Commuter Rail	5	2	1	1	2	1	2	14
23	Lorain (Black River Landing)	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Bus	0	0	0	0	0	0	0	0
2	Downtown Sandusky	Lakefront Station*	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus	0	0	0	0	0	0	0	0
9	Lorain (Black River Landing)	Westlake Park-n-Ride	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	0	0	0	0	0	0	0	0
8	Downtown Sandusky	Westlake Park-n-Ride	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	0	0	0	0	0	0	0	0
6	Downtown Sandusky	W. 117th Rapid	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus	0	0	0	0	0	0	0	0
7	Downtown Sandusky	West Blvd-Cudell Rapid	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	0	0	0	0	0	0	0	0

Table A5-3: Goal 3 Screening

Corridor Number	Western Terminal	Eastern Terminal	Alignment	Mode	Goal 3: Cost Effectiveness					Goal 3 Score
					Corridor Population Density	Corridor Employment Density	Expected Capital Cost	Right-of-Way Costs		
29	Lorain (Black River Landing)	Tower City Center	Nickel Plate Line	Commuter Rail	2	5	-7	-4		-4
31	Vermilion	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Rail	4	3	-2	-2		3
11	Lorain (Black River Landing)	Public Square/STJ Transit Center	OH-2/I-90/W. 25th/Superior	Commuter Bus	3	4	0	0		7
13	Lorain (Black River Landing)	Lakefront Station*	OH-2/I-90/W. 117th/Clifton/Shoreway	Commuter Bus	5	4	0	0		9
18	Lorain (Black River Landing)	Westlake Park-n-Ride	OH-2/I-90	Commuter Bus	5	5	0	0		10
32	Lorain (Black River Landing)	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Rail	3	1	-4	-2		-2
12	Downtown Sandusky	Lakefront Station*	OH-2/I-90/W. 117th/Clifton/Shoreway	Commuter Bus	4	4	0	0		8
15	Downtown Sandusky	W. 117th Rapid	OH-2/I-90/W. 117th	Commuter Bus	2	5	0	0		7
17	Downtown Sandusky	Westlake Park-n-Ride	OH-2/I-90	Commuter Bus	5	4	0	0		9
10	Downtown Sandusky	Public Square/STJ Transit Center	OH-2/I-90/W. 25th/Superior	Commuter Bus	0	3	0	0		3
26	Lorain (Black River Landing)	Lakefront Station*	Nickel Plate Line	Commuter Rail	5	2	-7	-5		-5
14	Downtown Sandusky	Triskett Rapid	OH-2/I-90/Warren/Triskett	Commuter Bus	1	5	0	0		6
16	Downtown Sandusky	West Blvd-Cudell Rapid	OH-2/I-90/W. 117th/Detroit	Commuter Bus	3	4	0	0		7
25	Vermilion	Lakefront Station*	Nickel Plate Line	Commuter Rail	4	2	-6	-5		-5
28	Vermilion	Tower City Center	Nickel Plate Line	Commuter Rail	2	1	-6	-4		-7
30	Sandusky Amtrak	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Rail	3	1	-2	-7		-5
3	Downtown Sandusky	Public Square/STJ Transit Center	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	1	3	0	0		4
5	Lorain (Black River Landing)	Public Square/STJ Transit Center	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus	4	5	0	0		9
21	Lorain (Black River Landing)	West Blvd-Cudell Rapid	OH-2/I-90/W. 117th/Detroit	Commuter Bus	4	2	0	0		6
20	Lorain (Black River Landing)	W. 117th Rapid	OH-2/I-90/W. 117th	Commuter Bus	2	1	0	0		3
22	Vermilion	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Bus	5	2	-4	-10		-7
24	Sandusky Amtrak	Lakefront Station*	Nickel Plate Line	Commuter Rail	3	2	-12	-10		-17
1	Downtown Sandusky	Lakefront Station*	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	0	3	0	0		3
4	Downtown Sandusky	Public Square/STJ Transit Center	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus	1	3	0	0		4
19	Lorain (Black River Landing)	Triskett Rapid	OH-2/I-90/Warren/Triskett	Commuter Bus	2	0	0	0		2
27	Sandusky Amtrak	Tower City Center	Nickel Plate Line	Commuter Rail	0	0	-12	-9		-21
23	Lorain (Black River Landing)	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Bus	1	0	-4	-10		-13
2	Downtown Sandusky	Lakefront Station*	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus	1	1	0	0		2
9	Lorain (Black River Landing)	Westlake Park-n-Ride	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	0	0	0	0		0
8	Downtown Sandusky	Westlake Park-n-Ride	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	0	0	0	0		0
6	Downtown Sandusky	W. 117th Rapid	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus	0	0	0	0		0
7	Downtown Sandusky	West Blvd-Cudell Rapid	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	0	0	0	0		0

Table A5-4: Goal 4 Screening

Corridor Number	Western Terminal	Eastern Terminal	Alignment	Mode	Goal 4: Fiscal Responsibility		Goal 4 Score
					Operating Costs	Cross jurisdictional operations	
29	Lorain (Black River Landing)	Tower City Center	Nickel Plate Line	Commuter Rail	-2	0	-2
31	Vermilion	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Rail	-2	0	-2
11	Lorain (Black River Landing)	Public Square/STⅡ Transit Center	OH-2/I-90/W. 25th/Superior	Commuter Bus	0	0	0
13	Lorain (Black River Landing)	Lakefront Station*	OH-2/I-90/W. 117th/Clifton/Shoreway	Commuter Bus	0	-2	-2
18	Lorain (Black River Landing)	Westlake Park-n-Ride	OH-2/I-90	Commuter Bus	0	0	0
32	Lorain (Black River Landing)	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Rail	-2	0	-2
12	Downtown Sandusky	Lakefront Station*	OH-2/I-90/W. 117th/Clifton/Shoreway	Commuter Bus	-1	-2	-3
15	Downtown Sandusky	W. 117th Rapid	OH-2/I-90/W. 117th	Commuter Bus	-1	-2	-3
17	Downtown Sandusky	Westlake Park-n-Ride	OH-2/I-90	Commuter Bus	-1	-2	-3
10	Downtown Sandusky	Public Square/STⅡ Transit Center	OH-2/I-90/W. 25th/Superior	Commuter Bus	-1	-2	-3
26	Lorain (Black River Landing)	Lakefront Station*	Nickel Plate Line	Commuter Rail	-2	0	-2
14	Downtown Sandusky	Triskett Rapid	OH-2/I-90/Warren/Triskett	Commuter Bus	-1	-2	-3
16	Downtown Sandusky	West Blvd-Cudell Rapid	OH-2/I-90/W. 117th/Detroit	Commuter Bus	-1	-2	-3
25	Vermilion	Lakefront Station*	Nickel Plate Line	Commuter Rail	-2	0	-2
28	Vermilion	Tower City Center	Nickel Plate Line	Commuter Rail	-2	0	-2
30	Sandusky Amtrak	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Rail	-2	-2	-4
3	Downtown Sandusky	Public Square/STⅡ Transit Center	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	0	-2	-2
5	Lorain (Black River Landing)	Public Square/STⅡ Transit Center	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus	0	0	0
21	Lorain (Black River Landing)	West Blvd-Cudell Rapid	OH-2/I-90/W. 117th/Detroit	Commuter Bus	0	-2	-2
20	Lorain (Black River Landing)	W. 117th Rapid	OH-2/I-90/W. 117th	Commuter Bus	0	-2	-2
22	Vermilion	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Bus	0	0	0
24	Sandusky Amtrak	Lakefront Station*	Nickel Plate Line	Commuter Rail	-2	-2	-4
1	Downtown Sandusky	Lakefront Station*	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	0	-2	-2
4	Downtown Sandusky	Public Square/STⅡ Transit Center	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus	0	-2	-2
19	Lorain (Black River Landing)	Triskett Rapid	OH-2/I-90/Warren/Triskett	Commuter Bus	0	-2	-2
27	Sandusky Amtrak	Tower City Center	Nickel Plate Line	Commuter Rail	-2	-2	-4
23	Lorain (Black River Landing)	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Bus	0	0	0
2	Downtown Sandusky	Lakefront Station*	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus	0	-2	-2
9	Lorain (Black River Landing)	Westlake Park-n-Ride	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	0	0	0
8	Downtown Sandusky	Westlake Park-n-Ride	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	0	-2	-2
6	Downtown Sandusky	W. 117th Rapid	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus	0	-2	-2
7	Downtown Sandusky	West Blvd-Cudell Rapid	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	0	-2	-2

Table A5-5: Goal 5 Screening

Corridor Number	Western Terminal	Eastern Terminal	Alignment	Mode	Goal 5: Environmental Impact	Goal 5 Score
					Environmental Impact	
29	Lorain (Black River Landing)	Tower City Center	Nickel Plate Line	Commuter Rail	5	5
31	Vermilion	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Rail	5	5
11	Lorain (Black River Landing)	Public Square/STJ Transit Center	OH-2/I-90/W. 25th/Superior	Commuter Bus	2	2
13	Lorain (Black River Landing)	Lakefront Station*	OH-2/I-90/W. 117th/Clifton/Shoreway	Commuter Bus	2	2
18	Lorain (Black River Landing)	Westlake Park-n-Ride	OH-2/I-90	Commuter Bus	2	2
32	Lorain (Black River Landing)	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Rail	5	5
12	Downtown Sandusky	Lakefront Station*	OH-2/I-90/W. 117th/Clifton/Shoreway	Commuter Bus	2	2
15	Downtown Sandusky	W. 117th Rapid	OH-2/I-90/W. 117th	Commuter Bus	2	2
17	Downtown Sandusky	Westlake Park-n-Ride	OH-2/I-90	Commuter Bus	2	2
10	Downtown Sandusky	Public Square/STJ Transit Center	OH-2/I-90/W. 25th/Superior	Commuter Bus	2	2
26	Lorain (Black River Landing)	Lakefront Station*	Nickel Plate Line	Commuter Rail	5	5
14	Downtown Sandusky	Triskett Rapid	OH-2/I-90/Warren/Triskett	Commuter Bus	2	2
16	Downtown Sandusky	West Blvd-Cudell Rapid	OH-2/I-90/W. 117th/Detroit	Commuter Bus	2	2
25	Vermilion	Lakefront Station*	Nickel Plate Line	Commuter Rail	5	5
28	Vermilion	Tower City Center	Nickel Plate Line	Commuter Rail	5	5
30	Sandusky Amtrak	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Rail	5	5
3	Downtown Sandusky	Public Square/STJ Transit Center	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	1	1
5	Lorain (Black River Landing)	Public Square/STJ Transit Center	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus	1	1
21	Lorain (Black River Landing)	West Blvd-Cudell Rapid	OH-2/I-90/W. 117th/Detroit	Commuter Bus	2	2
20	Lorain (Black River Landing)	W. 117th Rapid	OH-2/I-90/W. 117th	Commuter Bus	2	2
22	Vermilion	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Bus	2	2
24	Sandusky Amtrak	Lakefront Station*	Nickel Plate Line	Commuter Rail	5	5
1	Downtown Sandusky	Lakefront Station*	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	1	1
4	Downtown Sandusky	Public Square/STJ Transit Center	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus	1	1
19	Lorain (Black River Landing)	Triskett Rapid	OH-2/I-90/Warren/Triskett	Commuter Bus	2	2
27	Sandusky Amtrak	Tower City Center	Nickel Plate Line	Commuter Rail	5	5
23	Lorain (Black River Landing)	West Blvd-Cudell Rapid	Nickel Plate Line	Commuter Bus	2	2
2	Downtown Sandusky	Lakefront Station*	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus	1	1
9	Lorain (Black River Landing)	Westlake Park-n-Ride	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	1	1
8	Downtown Sandusky	Westlake Park-n-Ride	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	1	1
6	Downtown Sandusky	W. 117th Rapid	Lake Road/Clifton Blvd/Shoreway	Limited Stop Bus	1	1
7	Downtown Sandusky	West Blvd-Cudell Rapid	Lake Road/21st Street/Colorado Ave/Detroit Road	Limited Stop Bus	1	1

Westshore Corridor Transportation Project

West Shore Corridor Alternatives Analysis Study

Chapter 6 - Appendix

Proposed Schedules by Mode

June 2013

Appendix A6 – Proposed Schedules for Main Mode by Alternative

Table A6.1: Bus Schedule for TSM

Route TSM 1	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5
Sandusky Amtrak	04:45	05:15	05:45	12:00	17:05
Huron Station	05:07	05:37	06:07	12:22	17:27
Vermilion Station	05:36	06:06	06:36	12:51	17:56
Lorain (Black River Landing)	06:02	06:32	07:02	13:17	18:22
Abbe Road Station	06:18	06:48	07:18	13:33	18:38
SR 83 Station	06:30	07:00	07:30	13:45	18:50
Lear-Nagle Station	06:39	07:09	07:39	13:54	18:59
Bassett Station	06:47	07:17	07:47	14:02	19:07
Columbia Station	06:56	07:26	07:56	14:11	19:16
Rocky River Station	07:06	07:36	08:06	14:21	19:26
Lakewood Station	07:11	07:41	08:11	14:26	19:31
West Boulevard Station	07:17	07:47	08:17	14:32	19:37
Public Square	07:27	07:57	08:27	14:42	19:47

Route TSM 2	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5
Public Square	6:00	12:00	16:05	17:05	18:05
West Boulevard Station	6:10	12:10	16:15	17:15	18:15
Lakewood Station	6:16	12:16	16:21	17:21	18:21
Rocky River Station	6:21	12:21	16:26	17:26	18:26
Columbia Station	6:30	12:30	16:35	17:35	18:35
Bassett Station	6:40	12:40	16:45	17:45	18:45
Lear-Nagle Station	6:48	12:48	16:53	17:53	18:53
SR 83 Station	6:57	12:57	17:02	18:02	19:02
Abbe Road Station	7:09	13:09	17:14	18:14	19:14
Lorain (Black River Landing)	7:25	13:25	17:30	18:30	19:30
Vermilion Station	7:50	13:50	17:55	18:55	19:55
Huron Station	8:19	14:19	18:24	19:24	20:24
Sandusky Amtrak	8:42	14:42	18:47	19:47	20:47

Table A6.2: Commuter Rail Schedule for Alt 1A

		Route 100	AM Trip 1	AM Trip 2	AM Trip 3
1	Lv	Sandusky Amtrak	5:03	6:03	7:03
2	Ar	Huron Station	5:14	6:14	7:14
3	Ar	Vermilion Station	5:30	6:30	7:30
4	Ar	Lorain	5:42	6:42	7:42
5	Ar	Abbe Road Station	5:49	6:49	7:49
6	Ar	Avon-Belden Road Station	5:54	6:54	7:54
7	Ar	Lear-Nagle Road Station	5:57	6:57	7:57
8	Ar	Bassett Road Station	6:01	7:01	8:01
9	Ar	Columbia Road Station	6:05	7:05	8:05
10	Ar	Rocky River Station	6:10	7:10	8:10
11	Ar	Lakewood Station	6:15	7:15	8:15
12	Ar	West Blvd Station	6:20	7:20	8:20
13	Ar	Lakefront Station	6:25	7:25	8:25

		Route 101	PM Trip 1	PM Trip 2	PM Trip 3
13	Lv	Lakefront Station	17:00	18:00	19:00
12	Ar	West Blvd Station	17:04	18:04	19:04
11	Ar	Lakewood Station	17:09	18:09	19:09
10	Ar	Rocky River Station	17:14	18:14	19:14
9	Ar	Columbia Road Station	17:19	18:19	19:19
8	Ar	Bassett Road Station	17:23	18:23	19:23
7	Ar	Lear-Nagle Road Station	17:27	18:27	19:27
6	Ar	Avon-Belden Road Station	17:30	18:30	19:30
5	Ar	Abbe Road Station	17:35	18:35	19:35
4	Ar	Lorain	17:42	18:42	19:42
3	Ar	Vermilion Station	17:54	18:54	19:54
2	Ar	Huron Station	18:10	19:10	20:10
1	Ar	Sandusky Amtrak	18:21	19:21	20:21

		Route TSM 1	Trip 1	Trip 2
1	Lv	Sandusky Amtrak	12:00	17:05
2	Ar	Huron Station	12:22	17:27
3	Ar	Vermilion Station	12:51	17:56
4	Ar	Lorain (Black River Landing)	13:17	18:22
5	Ar	Abbe Road Station	13:33	18:38
6	Ar	SR 83 Station	13:45	18:50
7	Ar	Lear-Nagle Station	13:54	18:59
8	Ar	Bassett Station	14:02	19:07
9	Ar	Columbia Station	14:11	19:16
10	Ar	Rocky River Station	14:21	19:26
11	Ar	Lakewood Station	14:26	19:31
12	Ar	West Boulevard Station	14:32	19:37
13	Ar	Public Square	14:42	19:47

		Route TSM 2	Trip 1	Trip 2
13	Lv	Public Square	5:15	12:00
12	Ar	West Boulevard Station	5:25	12:10
11	Ar	Lakewood Station	5:31	12:16
10	Ar	Rocky River Station	5:36	12:21
9	Ar	Columbia Station	5:45	12:30
8	Ar	Bassett Station	5:55	12:40
7	Ar	Lear-Nagle Station	6:03	12:48
6	Ar	SR 83 Station	6:12	12:57
5	Ar	Abbe Road Station	6:24	13:09
4	Ar	Lorain (Black River Landing)	6:40	13:25
3	Ar	Vermilion Station	7:05	13:50
2	Ar	Huron Station	7:34	14:19
1	Ar	Sandusky Amtrak	7:57	14:42

Table A6.3: Commuter Rail Schedule for Alt 1C

		Route 100	AM Trip 1	AM Trip 2	AM Trip 3
4	Ar	Lorain	5:42	6:42	7:42
5	Ar	Abbe Road Station	5:49	6:49	7:49
6	Ar	Avon-Belden Road Station	5:54	6:54	7:54
7	Ar	Lear-Nagle Road Station	5:57	6:57	7:57
8	Ar	Bassett Road Station	6:01	7:01	8:01
9	Ar	Columbia Road Station	6:05	7:05	8:05
10	Ar	Rocky River Station	6:10	7:10	8:10
11	Ar	Lakewood Station	6:15	7:15	8:15
12	Ar	West Blvd Station	6:20	7:20	8:20
13	Ar	Lakefront Station	6:25	7:25	8:25

		Route 101	PM Trip 1	PM Trip 2	PM Trip 3
13	Lv	Lakefront Station	17:00	18:00	19:00
12	Ar	West Blvd Station	17:04	18:04	19:04
11	Ar	Lakewood Station	17:09	18:09	19:09
10	Ar	Rocky River Station	17:14	18:14	19:14
9	Ar	Columbia Road Station	17:19	18:19	19:19
8	Ar	Bassett Road Station	17:23	18:23	19:23
7	Ar	Lear-Nagle Road Station	17:27	18:27	19:27
6	Ar	Avon-Belden Road Station	17:30	18:30	19:30
5	Ar	Abbe Road Station	17:35	18:35	19:35
4	Ar	Lorain	17:42	18:42	19:42

		Route TSM 1	Trip 1	Trip 2
1	Lv	Sandusky Amtrak	12:00	17:05
2	Ar	Huron Station	12:22	17:27
3	Ar	Vermilion Station	12:51	17:56
4	Ar	Lorain (Black River Landing)	13:17	18:22
5	Ar	Abbe Road Station	13:33	18:38
6	Ar	SR 83 Station	13:45	18:50
7	Ar	Lear-Nagle Station	13:54	18:59
8	Ar	Bassett Station	14:02	19:07
9	Ar	Columbia Station	14:11	19:16
10	Ar	Rocky River Station	14:21	19:26
11	Ar	Lakewood Station	14:26	19:31
12	Ar	West Boulevard Station	14:32	19:37
13	Ar	Public Square	14:42	19:47

		Route TSM 2	Trip 1	Trip 2
13	Lv	Public Square	5:15	12:00
12	Ar	West Boulevard Station	5:25	12:10
11	Ar	Lakewood Station	5:31	12:16
10	Ar	Rocky River Station	5:31	12:16
9	Ar	Columbia Station	5:40	12:25
8	Ar	Bassett Station	5:50	12:35
7	Ar	Lear-Nagle Station	5:58	12:43
6	Ar	SR 83 Station	6:07	12:52
5	Ar	Abbe Road Station	6:19	13:04
4	Ar	Lorain (Black River Landing)	6:35	13:20
3	Ar	Vermilion Station	7:00	13:45
2	Ar	Huron Station	7:29	14:14
1	Ar	Sandusky Amtrak	7:52	14:37

Table A6.4: Commuter Rail Schedule for Alt 2A

		Route 200	AM Trip 1	AM Trip 2	AM Trip 3
1	Lv	Sandusky Amtrak	5:02	6:02	7:02
2	Ar	Huron Station	5:13	6:13	7:13
3	Ar	Vermilion Station	5:28	6:28	7:28
4	Ar	Lorain	5:41	6:41	7:41
5	Ar	Abbe Road Station	5:48	6:48	7:48
6	Ar	Avon-Belden Road Station	5:53	6:53	7:53
7	Ar	Lear-Nagle Road Station	5:56	6:56	7:56
8	Ar	Bassett Road Station	5:59	6:59	7:59
9	Ar	Columbia Road Station	6:04	7:04	8:04
10	Ar	Rocky River Station	6:08	7:08	8:08
11	Ar	Lakewood Station	6:13	7:13	8:13
12	Ar	West Blvd Station	6:18	7:18	8:18
14	Ar	Tower City	6:25	7:25	8:25

		Route 201	PM Trip 1	PM Trip 2	PM Trip 3
14	Lv	Tower City	17:00	18:00	19:00
12	Ar	West Blvd Station	17:07	18:07	19:07
11	Ar	Lakewood Station	17:11	18:11	19:11
10	Ar	Rocky River Station	17:16	18:16	19:16
9	Ar	Columbia Road Station	17:20	18:20	19:20
8	Ar	Bassett Road Station	17:25	18:25	19:25
7	Ar	Lear-Nagle Road Station	17:28	18:28	19:28
6	Ar	Avon-Belden Road Station	17:32	18:32	19:32
5	Ar	Abbe Road Station	17:36	18:36	19:36
4	Ar	Lorain	17:43	18:43	19:43
3	Ar	Vermilion Station	17:56	18:56	19:56
2	Ar	Huron Station	18:11	19:11	20:11
1	Ar	Sandusky Amtrak	18:22	19:22	20:22

		Route TSM 1	Trip 1	Trip 2
1	Lv	Sandusky Amtrak	12:00	17:05
2	Ar	Huron Station	12:22	17:27
3	Ar	Vermilion Station	12:51	17:56
4	Ar	Lorain (Black River Landing)	13:17	18:22
5	Ar	Abbe Road Station	13:33	18:38
6	Ar	SR 83 Station	13:45	18:50
7	Ar	Lear-Nagle Station	13:54	18:59
8	Ar	Bassett Station	14:02	19:07
9	Ar	Columbia Station	14:11	19:16
10	Ar	Rocky River Station	14:21	19:26
11	Ar	Lakewood Station	14:26	19:31
12	Ar	West Boulevard Station	14:32	19:37
13	Ar	Public Square	14:42	19:47

		Route TSM 2	Trip 1	Trip 2
13	Lv	Public Square	5:15	12:00
12	Ar	West Boulevard Station	5:25	12:10
11	Ar	Lakewood Station	5:31	12:16
10	Ar	Rocky River Station	5:31	12:16
9	Ar	Columbia Station	5:40	12:25
8	Ar	Bassett Station	5:50	12:35
7	Ar	Lear-Nagle Station	5:58	12:43
6	Ar	SR 83 Station	6:07	12:52
5	Ar	Abbe Road Station	6:19	13:04
4	Ar	Lorain (Black River Landing)	6:35	13:20
3	Ar	Vermilion Station	7:00	13:45
2	Ar	Huron Station	7:29	14:14
1	Ar	Sandusky Amtrak	7:52	14:37

Table A6.5: Commuter Rail Schedule for Alt 2C

		Route 200	AM Trip 1	AM Trip 2	AM Trip 3
4	Ar	Lorain	5:41	6:41	7:41
5	Ar	Abbe Road Station	5:48	6:48	7:48
6	Ar	Avon-Belden Road Station	5:53	6:53	7:53
7	Ar	Lear-Nagle Road Station	5:56	6:56	7:56
8	Ar	Bassett Road Station	5:59	6:59	7:59
9	Ar	Columbia Road Station	6:04	7:04	8:04
10	Ar	Rocky River Station	6:08	7:08	8:08
11	Ar	Lakewood Station	6:13	7:13	8:13
12	Ar	West Blvd Station	6:18	7:18	8:18
14	Ar	Tower City	6:25	7:25	8:25

		Route 201	PM Trip 1	PM Trip 2	PM Trip 3
14	Lv	Tower City	17:00	18:00	19:00
12	Ar	West Blvd Station	17:07	18:07	19:07
11	Ar	Lakewood Station	17:11	18:11	19:11
10	Ar	Rocky River Station	17:16	18:16	19:16
9	Ar	Columbia Road Station	17:20	18:20	19:20
8	Ar	Bassett Road Station	17:25	18:25	19:25
7	Ar	Lear-Nagle Road Station	17:28	18:28	19:28
6	Ar	Avon-Belden Road Station	17:32	18:32	19:32
5	Ar	Abbe Road Station	17:36	18:36	19:36
4	Ar	Lorain	17:43	18:43	19:43

		Route TSM 1	Trip 1	Trip 2
1	Lv	Sandusky Amtrak	12:00	17:05
2	Ar	Huron Station	12:22	17:27
3	Ar	Vermilion Station	12:51	17:56
4	Ar	Lorain (Black River Landing)	13:17	18:22
5	Ar	Abbe Road Station	13:33	18:38
6	Ar	SR 83 Station	13:45	18:50
7	Ar	Lear-Nagle Station	13:54	18:59
8	Ar	Bassett Station	14:02	19:07
9	Ar	Columbia Station	14:11	19:16
10	Ar	Rocky River Station	14:21	19:26
11	Ar	Lakewood Station	14:26	19:31
12	Ar	West Boulevard Station	14:32	19:37
13	Ar	Public Square	14:42	19:47

		Route TSM 2	Trip 1	Trip 2
13	Lv	Public Square	5:15	12:00
12	Ar	West Boulevard Station	5:25	12:10
11	Ar	Lakewood Station	5:31	12:16
10	Ar	Rocky River Station	5:31	12:16
9	Ar	Columbia Station	5:40	12:25
8	Ar	Bassett Station	5:50	12:35
7	Ar	Lear-Nagle Station	5:58	12:43
6	Ar	SR 83 Station	6:07	12:52
5	Ar	Abbe Road Station	6:19	13:04
4	Ar	Lorain (Black River Landing)	6:35	13:20
3	Ar	Vermilion Station	7:00	13:45
2	Ar	Huron Station	7:29	14:14
1	Ar	Sandusky Amtrak	7:52	14:37

Table A6.6: Commuter Rail Schedule for Alt 3A

		Route 300	AM Trip 1	AM Trip 2	AM Trip 3
1	Lv	Sandusky Amtrak	5:09	6:09	7:09
2	Ar	Huron Station	5:20	6:20	7:20
3	Ar	Vermilion Station	5:36	6:36	7:36
4	Ar	Lorain	5:48	6:48	7:48
5	Ar	Abbe Road Station	5:55	6:55	7:55
6	Ar	Avon-Belden Road Station	6:00	7:00	8:00
7	Ar	Lear-Nagle Road Station	6:03	7:03	8:03
8	Ar	Bassett Road Station	6:07	7:07	8:07
9	Ar	Columbia Road Station	6:11	7:11	8:11
10	Ar	Rocky River Station	6:16	7:16	8:16
11	Ar	Lakewood Station	6:21	7:21	8:21
12	Ar	West Blvd Station	6:25	7:25	8:25

		Route 301	PM Trip 1	PM Trip 2	PM Trip 3
12	Lv	West Blvd Station	17:00	18:00	19:00
11	Ar	Lakewood Station	17:03	18:03	19:03
10	Ar	Rocky River Station	17:08	18:08	19:08
9	Ar	Columbia Road Station	17:13	18:13	19:13
8	Ar	Bassett Road Station	17:17	18:17	19:17
7	Ar	Lear-Nagle Road Station	17:21	18:21	19:21
6	Ar	Avon-Belden Road Station	17:24	18:24	19:24
5	Ar	Abbe Road Station	17:29	18:29	19:29
4	Ar	Lorain	17:36	18:36	19:36
3	Ar	Vermilion Station	17:48	18:48	19:48
2	Ar	Huron Station	18:04	19:04	20:04
1	Ar	Sandusky Amtrak	18:15	19:15	20:15

		Route TSM 1	Trip 1	Trip 2
1	Lv	Sandusky Amtrak	12:00	17:05
2	Ar	Huron Station	12:22	17:27
3	Ar	Vermilion Station	12:51	17:56
4	Ar	Lorain (Black River Landing)	13:17	18:22
5	Ar	Abbe Road Station	13:33	18:38
6	Ar	SR 83 Station	13:45	18:50
7	Ar	Lear-Nagle Station	13:54	18:59
8	Ar	Bassett Station	14:02	19:07
9	Ar	Columbia Station	14:11	19:16
10	Ar	Rocky River Station	14:21	19:26
11	Ar	Lakewood Station	14:26	19:31
12	Ar	West Boulevard Station	14:32	19:37
13	Ar	Public Square	14:42	19:47

		Route TSM 2	Trip 1	Trip 2
13	Lv	Public Square	5:15	12:00
12	Ar	West Boulevard Station	5:25	12:10
11	Ar	Lakewood Station	5:31	12:16
10	Ar	Rocky River Station	5:31	12:16
9	Ar	Columbia Station	5:40	12:25
8	Ar	Bassett Station	5:50	12:35
7	Ar	Lear-Nagle Station	5:58	12:43
6	Ar	SR 83 Station	6:07	12:52
5	Ar	Abbe Road Station	6:19	13:04
4	Ar	Lorain (Black River Landing)	6:35	13:20
3	Ar	Vermilion Station	7:00	13:45
2	Ar	Huron Station	7:29	14:14
1	Ar	Sandusky Amtrak	7:52	14:37

Table A6.7: Commuter Rail Schedule for Alt 3C

		Route 300	AM Trip 1	AM Trip 2	AM Trip 3
4	Ar	Lorain	5:48	6:48	7:48
5	Ar	Abbe Road Station	5:55	6:55	7:55
6	Ar	Avon-Belden Road Station	6:00	7:00	8:00
7	Ar	Lear-Nagle Road Station	6:03	7:03	8:03
8	Ar	Bassett Road Station	6:07	7:07	8:07
9	Ar	Columbia Road Station	6:11	7:11	8:11
10	Ar	Rocky River Station	6:16	7:16	8:16
11	Ar	Lakewood Station	6:21	7:21	8:21
12	Ar	West Blvd Station	6:25	7:25	8:25

		Route 301	PM Trip 1	PM Trip 2	PM Trip 3
12	Lv	West Blvd Station	17:00	18:00	19:00
11	Ar	Lakewood Station	17:03	18:03	19:03
10	Ar	Rocky River Station	17:08	18:08	19:08
9	Ar	Columbia Road Station	17:13	18:13	19:13
8	Ar	Bassett Road Station	17:17	18:17	19:17
7	Ar	Lear-Nagle Road Station	17:21	18:21	19:21
6	Ar	Avon-Belden Road Station	17:24	18:24	19:24
5	Ar	Abbe Road Station	17:29	18:29	19:29
4	Ar	Lorain	17:36	18:36	19:36

		Route TSM 1	Trip 1	Trip 2
1	Lv	Sandusky Amtrak	12:00	17:05
2	Ar	Huron Station	12:22	17:27
3	Ar	Vermilion Station	12:51	17:56
4	Ar	Lorain (Black River Landing)	13:17	18:22
5	Ar	Abbe Road Station	13:33	18:38
6	Ar	SR 83 Station	13:45	18:50
7	Ar	Lear-Nagle Station	13:54	18:59
8	Ar	Bassett Station	14:02	19:07
9	Ar	Columbia Station	14:11	19:16
10	Ar	Rocky River Station	14:21	19:26
11	Ar	Lakewood Station	14:26	19:31
12	Ar	West Boulevard Station	14:32	19:37
13	Ar	Public Square	14:42	19:47

		Route TSM 2	Trip 1	Trip 2
13	Lv	Public Square	5:15	12:00
12	Ar	West Boulevard Station	5:25	12:10
11	Ar	Lakewood Station	5:31	12:16
10	Ar	Rocky River Station	5:31	12:16
9	Ar	Columbia Station	5:40	12:25
8	Ar	Bassett Station	5:50	12:35
7	Ar	Lear-Nagle Station	5:58	12:43
6	Ar	SR 83 Station	6:07	12:52
5	Ar	Abbe Road Station	6:19	13:04
4	Ar	Lorain (Black River Landing)	6:35	13:20
3	Ar	Vermilion Station	7:00	13:45
2	Ar	Huron Station	7:29	14:14
1	Ar	Sandusky Amtrak	7:52	14:37

Table A6-8: Commuter Bus Schedules for Alt 4

		Route 400	Trip 1	Trip 2
1	Lv	Downtown Sandusky	12:00	17:00
2	Ar	US 250 P&R	12:13	17:13
3	Ar	Huron	12:27	17:27
4	Ar	Vermilion P&R	12:45	17:45
5	Ar	Lorain (Black River Landing)	13:08	18:08
6	Ar	Midway Mall	13:27	18:27
7	Ar	Sheffield (Detroit-Abbe)	13:35	18:35
8	Ar	Avon (SR 83)	13:45	18:45
9	Ar	Avon (Lear-Nagle)	13:52	18:52
10	Ar	Crocker Park	14:02	19:02
12	Ar	Public Square	14:25	19:25

		Route 401	Trip 1	Trip 2
12	Lv	Public Square	5:00	12:00
10	Ar	Crocker Park	5:23	12:23
9	Ar	Avon (Lear-Nagle)	5:33	12:33
8	Ar	Avon (SR 83)	5:40	12:40
7	Ar	Sheffield (Detroit-Abbe)	5:50	12:50
6	Ar	Midway Mall	5:58	12:58
5	Ar	Lorain (Black River Landing)	6:17	13:17
4	Ar	Vermilion P&R	6:40	13:40
3	Ar	Huron	6:58	13:58
2	Ar	US 250 P&R	7:12	14:12
1	Ar	Downtown Sandusky	7:25	14:25

		Route 402	AM Trip 1	AM Trip 2	AM Trip 3
1	Lv	Downtown Sandusky	5:20	5:50	6:20
2	Ar	US 250 P&R	5:33	6:03	6:33
3	Ar	Huron	5:47	6:17	6:47
4	Ar	Vermilion P&R	6:05	6:35	7:05
10	Ar	Crocker Park	6:37	7:07	7:37
12	Ar	Public Square	7:00	7:30	8:00

		Route 403	PM Trip 1	PM Trip 2	PM Trip 3
12	Lv	Public Square	17:00	18:00	19:00
10	Ar	Crocker Park	17:23	18:23	19:23
4	Ar	Vermilion P&R	17:55	18:55	19:55
3	Ar	Huron	18:13	19:13	20:13
2	Ar	US 250 P&R	18:27	19:27	20:27
1	Ar	Downtown Sandusky	18:40	19:40	20:40

		Route 404	AM Trip 1	AM Trip 2	AM Trip 3
5	Lv	Lorain (Black River Landing)	5:58	6:28	6:58
6	Ar	Midway Mall	6:17	6:47	7:17
10	Ar	Crocker Park	6:37	7:07	7:37
12	Ar	Public Square	7:00	7:30	8:00

		Route 405	PM Trip 1	PM Trip 2	PM Trip 3
12	Lv	Public Square	17:00	17:30	18:00
10	Ar	Crocker Park	17:23	17:53	18:23
6	Ar	Midway Mall	17:43	18:13	18:43
5	Ar	Lorain (Black River Landing)	18:02	18:32	19:02

		Route 406	AM Trip 1	AM Trip 2	AM Trip 3
7	Lv	Sheffield (Detroit-Abbe)	6:10	6:40	7:10
8	Ar	Avon (SR 83)	6:20	6:50	7:20
9	Ar	Avon (Lear-Nagle)	6:27	6:57	7:27
10	Ar	Crocker Park	6:37	7:07	7:37
12	Ar	Public Square	7:00	7:30	8:00

		Route 407	PM Trip 1	PM Trip 2	PM Trip 3
12	Lv	Public Square	17:00	18:00	19:00
10	Ar	Crocker Park	17:23	18:23	19:23
9	Ar	Avon (Lear-Nagle)	17:33	18:33	19:33
8	Ar	Avon (SR 83)	17:40	18:40	19:40
7	Ar	Sheffield (Detroit-Abbe)	17:50	18:50	19:50

Table A6-9: Commuter Bus Schedules for Alt 5

		Route 500	Trip 1	Trip 2
1	Lv	Downtown Sandusky	12:00	17:00
2	Ar	US 250 P&R	12:13	17:13
3	Ar	Huron	12:27	17:27
4	Ar	Vermilion P&R	12:45	17:45
5	Ar	Lorain (Black River Landing)	13:08	18:08
6	Ar	Midway Mall	13:27	18:27
7	Ar	Sheffield (Detroit-Abbe)	13:35	18:35
8	Ar	Avon (SR 83)	13:45	18:45
9	Ar	Avon (Lear-Nagle)	13:52	18:52
10	Ar	Crocker Park	14:02	19:02
12	Ar	Public Square	14:25	19:25

		Route 501	Trip 1	Trip 2
12	Lv	Public Square	5:00	12:00
10	Ar	Crocker Park	5:23	12:23
9	Ar	Avon (Lear-Nagle)	5:33	12:33
8	Ar	Avon (SR 83)	5:40	12:40
7	Ar	Sheffield (Detroit-Abbe)	5:50	12:50
6	Ar	Midway Mall	5:58	12:58
5	Ar	Lorain (Black River Landing)	6:17	13:17
4	Ar	Vermilion P&R	6:40	13:40
3	Ar	Huron	6:58	13:58
2	Ar	US 250 P&R	7:12	14:12
1	Ar	Downtown Sandusky	7:25	14:25

		Route 502	AM Trip 1	AM Trip 2	AM Trip 3
1	Lv	Downtown Sandusky	5:17	5:59	6:37
2	Ar	US 250 P&R	5:30	6:12	6:50
3	Ar	Huron	5:44	6:26	7:04
4	Ar	Vermilion P&R	6:02	6:44	7:22
10	Ar	Crocker Park	6:34	7:16	7:54
11	Ar	Westlake P&R	6:42	7:24	8:02
		#246 Westlake P&R	6:47	7:29	8:07

		Route 503	PM Trip 1	PM Trip 2	PM Trip 3
	Ar	#246 Westlake P&R	16:54	17:32	18:09
11	Lv	Westlake P&R	16:59	17:37	18:14
10	Ar	Crocker Park	17:07	17:45	18:22
4	Ar	Vermilion P&R	17:39	18:17	18:54
3	Ar	Huron	17:57	18:35	19:12
2	Ar	US 250 P&R	18:11	18:49	19:26
1	Ar	Downtown Sandusky	18:24	19:02	19:39

		Route 504	AM Trip 1	AM Trip 2	AM Trip 3
5	Lv	Lorain (Black River Landing)	5:40	6:25	7:01
6	Ar	Midway Mall	5:59	6:44	7:20
10	Ar	Crocker Park	6:19	7:04	7:40
11	Ar	Westlake P&R	6:27	7:12	7:48
	Lv	#246 Westlake P&R	6:32	7:17	7:53

		Route 505	PM Trip 1	PM Trip 2	PM Trip 3
	Ar	#246 Westlake P&R	17:09	17:42	18:39
11	Lv	Westlake P&R	17:14	17:47	18:44
10	Ar	Crocker Park	17:22	17:55	18:52
6	Ar	Midway Mall	17:42	18:15	19:12
5	Ar	Lorain (Black River Landing)	18:01	18:34	19:31

		Route 506	AM Trip 1	AM Trip 2	AM Trip 3
7	Lv	Sheffield (Detroit-Abbe)	5:32	6:22	7:01
8	Ar	Avon (SR 83)	5:42	6:32	7:11
9	Ar	Avon (Lear-Nagle)	5:49	6:39	7:18
10	Ar	Crocker Park	5:59	6:49	7:28
11	Ar	Westlake P&R	6:07	6:57	7:36
	Lv	#246 Westlake P&R	6:12	7:02	7:41

		Route 507	PM Trip 1	PM Trip 2	PM Trip 3
	Ar	#246 Westlake P&R	17:21	17:52	19:09
11	Lv	Westlake P&R	17:26	17:57	19:14
10	Ar	Crocker Park	17:34	18:05	19:22
9	Ar	Avon (Lear-Nagle)	17:44	18:15	19:32
8	Ar	Avon (SR 83)	17:51	18:22	19:39
7	Ar	Sheffield (Detroit-Abbe)	18:01	18:32	19:49

Westshore Corridor Transportation Project

West Shore Corridor Alternatives Analysis Study

Chapter 7 – Appendix

SCC Workbook by Alternative

June 2013

Appendix A7: SCC Workbook by Alternative

This appendix shows the capital costs arranged in Standard Cost Categories (SCC) format for submittal to FTA. There are eight tables, one for the TSM alternative, one for each of the six commuter rail alternatives and one for the commuter bus alternatives.

Table A7-1: TSM Baseline SCC Workbook

Westshore Corridor Transportation Project TSM Alternative: Sandusky to Public Square Preliminary Order of Magnitude Costs				
		All Costs in 2010 Dollars (x000)		
SCC	ITEM DESCRIPTION	ALLOCATED COSTS	ALLOCATED CONTINGENCY	*TOTAL COST*
10	***GUIDEWAY & TRACK ELEMENTS***	**$ -**	**$ -**	***$ -***
10.01	Guideway: At-grade, exclusive right-of-way	$ -	$ -	*$ -*
10.02	Guideway: At-grade, semi-exclusive (allows gross-traffic)	$ -	$ -	*$ -*
10.03	Guideway: At-grade in mixed traffic	$ -	$ -	*$ -*
10.04	Guideway: Aerial structure	$ -	$ -	*$ -*
10.05	Guideway: Built-up fill	$ -	$ -	*$ -*
10.06	Guideway: Underground cut & cover	$ -	$ -	*$ -*
10.07	Guideway: Underground tunnel	$ -	$ -	*$ -*
10.08	Guideway: Retained cut or fill	$ -	$ -	*$ -*
10.09	Track: Direct fixation	$ -	$ -	*$ -*
10.10	Track: Embedded	$ -	$ -	*$ -*
10.11	Track: Ballasted	$ -	$ -	*$ -*
10.12	Track: Special (switches, turnouts)	$ -	$ -	*$ -*
10.13	Track: Vibration and noise dampening	$ -	$ -	*$ -*
20	***STATIONS, STOPS, TERMINALS, INTERMODAL***	**$ 3,318**	**$ 996**	***$ 4,314***
20.01	At-grade station, stop, shelter, mall, terminal, platform	$ 3,318	$ 996	*$ 4,314*
20.02	Aerial station, stop, shelter, mall, terminal, platform	$ -	$ -	*$ -*
20.03	Underground station, stop, shelter, mall, terminal, platform	$ -	$ -	*$ -*
20.04	Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	$ -	$ -	*$ -*
20.05	Joint development	$ -	$ -	*$ -*
20.06	Automobile parking multi-story structure	$ -	$ -	*$ -*
20.07	Elevators, escalators	$ -	$ -	*$ -*
30	***SUPPORT FACILITIES: YARDS, SHOPS, ADMIN BLDGS***	**$ -**	**$ -**	***$ -***
30.01	Administration Building: Office, sales, storage, revenue counting	$ -	$ -	*$ -*
30.02	Light Maintenance Facility	$ -	$ -	*$ -*
30.03	Heavy Maintenance Facility	$ -	$ -	*$ -*
30.04	Storage or Maintenance of Way Building	$ -	$ -	*$ -*
30.05	Yard and yard track	$ -	$ -	*$ -*
40	***SITEWORK & SPECIAL CONDITIONS***	**$ 4,690**	**$ 1,407**	***$ 6,097***
40.01	Demolition, clearing, earthwork	$ 16	$ 5	*$ 20*
40.02	Site utilities, utility relocation	$ -	$ -	*$ -*
40.03	Haz. Mat'l, contam'd soil removal/mitigation, ground water treatments	$ -	$ -	*$ -*
40.04	Environmental mitigation, e.g. wetlands, historic, parks	$ -	$ -	*$ -*
40.05	Site structures including retaining walls, sound walls	$ -	$ -	*$ -*
40.06	Pedestrian/bike access and accommodation, landscaping	$ -	$ -	*$ -*
40.07	Automobile, bus, van accessways including roads, parking lots	$ 4,674	$ 1,402	*$ 6,077*
40.08	Temporary Facilities and other indirect costs during construction	$ -	$ -	*$ -*
50	***SYSTEMS***	**$ 1,062**	**$ 319**	***$ 1,381***
50.01	Train controls and signals	$ -	$ -	*$ -*
50.02	Traffic signals and crossing protection	$ -	$ -	*$ -*
50.03	Traction power supply: substations	$ -	$ -	*$ -*
50.04	Traction power distribution: catenary and third rail	$ -	$ -	*$ -*
50.05	Communications	$ -	$ -	*$ -*
50.06	Fare collection system and equipment	$ 1,062	$ 319	*$ 1,381*
50.07	Central Control	$ -	$ -	*$ -*
CONSTRUCTION SUBTOTAL (10-50)		**$ 9,070**	**$ 2,721**	***$ 11,792***
60	***ROW, LAND, EXISTING IMPROVEMENTS***	**$ -**	**$ -**	***$ -***
60.01	Purchase or lease of real estate	$ -	$ -	*$ -*
60.02	Relocation of existing households and businesses	$ -	$ -	*$ -*
70	***VEHICLES***	**$ 7,600**	**$ 760**	***$ 8,360***
70.01	Light Rail	$ -	$ -	*$ -*
70.02	Heavy Rail	$ -	$ -	*$ -*
70.03	Commuter Rail	$ -	$ -	*$ -*
70.04	Bus	$ 7,600	$ 760	*$ 8,360*
70.05	Other	$ -	$ -	*$ -*
70.06	Non-revenue vehicles	$ -	$ -	*$ -*
70.07	Spare parts	$ -	$ -	*$ -*
80	***PROFESSIONAL SERVICES***	**$ 2,721**	**$ 816**	***$ 3,537***
80.01	Preliminary Engineering	$ 726	$ 218	*$ 943*
80.02	Final Design	$ 363	$ 109	*$ 472*
80.03	Project management for design and construction	$ 181	$ 54	*$ 236*
80.04	Construction administration & management	$ 907	$ 272	*$ 1,179*
80.05	Professional liability and other Non-Construction insurance	$ -	$ -	*$ -*
80.06	Legal, Permits, Review Fees, by other agencies, cities, etc.	$ 363	$ 109	*$ 472*
80.07	Surveys, testing, investigation	$ 181	$ 54	*$ 236*
80.08	Start up	$ -	$ -	*$ -*
PRELIMINARY CAPITAL COST ESTIMATE		**$ 19,392**	**$ 4,297**	***$ 23,689***

Table A7-2: Alternative 1A SCC Workbook

Westshore Corridor Transportation Project Alternative 1a: Sandusky to Lakefront Station Preliminary Order of Magnitude Costs				
		All Costs in 2010 Dollars (x000)		
SCC	ITEM DESCRIPTION	ALLOCATED COSTS	ALLOCATED CONTINGENCY	*TOTAL COST*
10	***GUIDEWAY & TRACK ELEMENTS***	**$ 54,563**	**$ 16,369**	***$ 70,932***
10.01	Guideway: At-grade, exclusive right-of-way	$ 807	$ 242	*$ 1,050*
10.02	Guideway: At-grade, semi-exclusive (allows gross-traffic)	$ -	$ -	*$ -*
10.03	Guideway: At-grade in mixed traffic	$ -	$ -	*$ -*
10.04	Guideway: Aerial structure	$ 9,150	$ 2,745	*$ 11,895*
10.05	Guideway: Built-up fill	$ -	$ -	*$ -*
10.06	Guideway: Underground cut & cover	$ -	$ -	*$ -*
10.07	Guideway: Underground tunnel	$ -	$ -	*$ -*
10.08	Guideway: Retained cut or fill	$ -	$ -	*$ -*
10.09	Track: Direct fixation	$ -	$ -	*$ -*
10.10	Track: Embedded	$ -	$ -	*$ -*
10.11	Track: Ballasted	$ 29,565	$ 8,870	*$ 38,435*
10.12	Track: Special (switches, turnouts)	$ 15,041	$ 4,512	*$ 19,553*
10.13	Track: Vibration and noise dampening	$ -	$ -	*$ -*
20	***STATIONS, STOPS, TERMINALS, INTERMODAL***	**$ 13,345**	**$ 4,003**	***$ 17,348***
20.01	At-grade station, stop, shelter, mall, terminal, platform	$ 7,316	$ 2,195	*$ 9,511*
20.02	Aerial station, stop, shelter, mall, terminal, platform	$ -	$ -	*$ -*
20.03	Underground station, stop, shelter, mall, terminal, platform	$ -	$ -	*$ -*
20.04	Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	$ -	$ -	*$ -*
20.05	Joint development	$ -	$ -	*$ -*
20.06	Automobile parking multi-story structure	$ 5,462	$ 1,639	*$ 7,101*
20.07	Elevators, escalators	$ 567	$ 170	*$ 736*
30	***SUPPORT FACILITIES: YARDS, SHOPS, ADMIN BLDGS***	**$ 11,037**	**$ 3,311**	***$ 14,348***
30.01	Administration Building: Office, sales, storage, revenue counting	$ 2,650	$ 795	*$ 3,445*
30.02	Light Maintenance Facility	$ 3,670	$ 1,101	*$ 4,771*
30.03	Heavy Maintenance Facility	$ -	$ -	*$ -*
30.04	Storage or Maintenance of Way Building	$ -	$ -	*$ -*
30.05	Yard and yard track	$ 4,717	$ 1,415	*$ 6,132*
40	***SITEWORK & SPECIAL CONDITIONS***	**$ 5,375**	**$ 1,612**	***$ 6,987***
40.01	Demolition, clearing, earthwork	$ -	$ -	*$ -*
40.02	Site utilities, utility relocation	$ -	$ -	*$ -*
40.03	Haz. Mat'l, contam'd soil removal/mitigation, ground water treatments	$ -	$ -	*$ -*
40.04	Environmental mitigation, e.g. wetlands, historic, parks	$ -	$ -	*$ -*
40.05	Site structures including retaining walls, sound walls	$ -	$ -	*$ -*
40.06	Pedestrian/bike access and accommodation, landscaping	$ 556	$ 167	*$ 723*
40.07	Automobile, bus, van accessways including roads, parking lots	$ 4,819	$ 1,446	*$ 6,264*
40.08	Temporary Facilities and other indirect costs during construction	$ -	$ -	*$ -*
50	***SYSTEMS***	**$ 105,701**	**$ 31,710**	***$ 137,411***
50.01	Train controls and signals	$ 96,930	$ 29,079	*$ 126,009*
50.02	Traffic signals and crossing protection	$ 6,950	$ 2,085	*$ 9,035*
50.03	Traction power supply: substations	$ -	$ -	*$ -*
50.04	Traction power distribution: catenary and third rail	$ -	$ -	*$ -*
50.05	Communications	$ -	$ -	*$ -*
50.06	Fare collection system and equipment	$ 1,821	$ 546	*$ 2,367*
50.07	Central Control	$ -	$ -	*$ -*
CONSTRUCTION SUBTOTAL (10-50)		**$ 190,021**	**$ 57,006**	***$ 247,027***
60	***ROW, LAND, EXISTING IMPROVEMENTS***	**$ 7,177**	**$ 2,871**	***$ 10,048***
60.01	Purchase or lease of real estate	$ 7,177	$ 2,871	*$ 10,048*
60.02	Relocation of existing households and businesses	$ -	$ -	*$ -*
70	***VEHICLES***	**$ 42,528**	**$ 4,253**	***$ 46,781***
70.01	Light Rail	$ -	$ -	*$ -*
70.02	Heavy Rail	$ -	$ -	*$ -*
70.03	Commuter Rail	$ 35,728	$ 3,573	*$ 39,301*
70.04	Bus	$ 6,800	$ 680	*$ 7,480*
70.05	Other	$ -	$ -	*$ -*
70.06	Non-revenue vehicles	$ -	$ -	*$ -*
70.07	Spare parts	$ -	$ -	*$ -*
80	***PROFESSIONAL SERVICES***	**$ 57,006**	**$ 17,102**	***$ 74,108***
80.01	Preliminary Engineering	$ 15,202	$ 4,561	*$ 19,762*
80.02	Final Design	$ 7,601	$ 2,280	*$ 9,881*
80.03	Project management for design and construction	$ 3,800	$ 1,140	*$ 4,941*
80.04	Construction administration & management	$ 19,002	$ 5,701	*$ 24,703*
80.05	Professional liability and other Non-Construction insurance	$ -	$ -	*$ -*
80.06	Legal, Permits, Review Fees, by other agencies, cities, etc.	$ 7,601	$ 2,280	*$ 9,881*
80.07	Surveys, testing, investigation	$ 3,800	$ 1,140	*$ 4,941*
80.08	Start up	$ -	$ -	*$ -*
PRELIMINARY CAPITAL COST ESTIMATE		**$ 296,732**	**$ 81,232**	***$ 377,964***

Table A7-3: Alternative 1C SCC Workbook

Westshore Corridor Transportation Project Alternative 1c: Lorain to Lakefront Station Preliminary Order of Magnitude Costs				
		All Costs in 2010 Dollars (x000)		
SCC	ITEM DESCRIPTION	ALLOCATED COSTS	ALLOCATED CONTINGENCY	*TOTAL COST*
10	***GUIDEWAY & TRACK ELEMENTS***	**$ 14,473**	**$ 4,342**	***$ 18,815***
10.01	Guideway: At-grade, exclusive right-of-way	$ 787	$ 236	*$ 1,022*
10.02	Guideway: At-grade, semi-exclusive (allows gross-traffic)	$ -	$ -	*$ -*
10.03	Guideway: At-grade in mixed traffic	$ -	$ -	*$ -*
10.04	Guideway: Aerial structure	$ 2,360	$ 708	*$ 3,068*
10.05	Guideway: Built-up fill	$ -	$ -	*$ -*
10.06	Guideway: Underground cut & cover	$ -	$ -	*$ -*
10.07	Guideway: Underground tunnel	$ -	$ -	*$ -*
10.08	Guideway: Retained cut or fill	$ -	$ -	*$ -*
10.09	Track: Direct fixation	$ -	$ -	*$ -*
10.10	Track: Embedded	$ -	$ -	*$ -*
10.11	Track: Ballasted	$ 5,137	$ 1,541	*$ 6,678*
10.12	Track: Special (switches, turnouts)	$ 6,190	$ 1,857	*$ 8,047*
10.13	Track: Vibration and noise dampening	$ -	$ -	*$ -*
20	***STATIONS, STOPS, TERMINALS, INTERMODAL***	**$ 13,002**	**$ 3,901**	***$ 16,903***
20.01	At-grade station, stop, shelter, mall, terminal, platform	$ 6,974	$ 2,092	*$ 9,066*
20.02	Aerial station, stop, shelter, mall, terminal, platform	$ -	$ -	*$ -*
20.03	Underground station, stop, shelter, mall, terminal, platform	$ -	$ -	*$ -*
20.04	Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	$ -	$ -	*$ -*
20.05	Joint development	$ -	$ -	*$ -*
20.06	Automobile parking multi-story structure	$ 5,462	$ 1,639	*$ 7,101*
20.07	Elevators, escalators	$ 567	$ 170	*$ 736*
30	***SUPPORT FACILITIES: YARDS, SHOPS, ADMIN BLDGS***	**$ 11,037**	**$ 3,311**	***$ 14,348***
30.01	Administration Building: Office, sales, storage, revenue counting	$ 2,650	$ 795	*$ 3,445*
30.02	Light Maintenance Facility	$ 3,670	$ 1,101	*$ 4,771*
30.03	Heavy Maintenance Facility	$ -	$ -	*$ -*
30.04	Storage or Maintenance of Way Building	$ -	$ -	*$ -*
30.05	Yard and yard track	$ 4,717	$ 1,415	*$ 6,132*
40	***SITEWORK & SPECIAL CONDITIONS***	**$ 5,075**	**$ 1,522**	***$ 6,597***
40.01	Demolition, clearing, earthwork	$ 6	$ 2	*$ 8*
40.02	Site utilities, utility relocation	$ -	$ -	*$ -*
40.03	Haz. Mat'l, contam'd soil removal/mitigation, ground water treatments	$ -	$ -	*$ -*
40.04	Environmental mitigation, e.g. wetlands, historic, parks	$ -	$ -	*$ -*
40.05	Site structures including retaining walls, sound walls	$ -	$ -	*$ -*
40.06	Pedestrian/bike access and accommodation, landscaping	$ 405	$ 121	*$ 526*
40.07	Automobile, bus, van accessways including roads, parking lots	$ 4,664	$ 1,399	*$ 6,063*
40.08	Temporary Facilities and other indirect costs during construction	$ -	$ -	*$ -*
50	***SYSTEMS***	**$ 37,245**	**$ 11,173**	***$ 48,418***
50.01	Train controls and signals	$ 35,022	$ 10,507	*$ 45,528*
50.02	Traffic signals and crossing protection	$ 250	$ 75	*$ 325*
50.03	Traction power supply: substations	$ -	$ -	*$ -*
50.04	Traction power distribution: catenary and third rail	$ -	$ -	*$ -*
50.05	Communications	$ -	$ -	*$ -*
50.06	Fare collection system and equipment	$ 1,973	$ 592	*$ 2,564*
50.07	Central Control	$ -	$ -	*$ -*
CONSTRUCTION SUBTOTAL (10-50)		**$ 80,832**	**$ 24,250**	***$ 105,081***
60	***ROW, LAND, EXISTING IMPROVEMENTS***	**$ 6,328**	**$ 2,531**	***$ 8,859***
60.01	Purchase or lease of real estate	$ 6,328	$ 2,531	*$ 8,859*
60.02	Relocation of existing households and businesses	$ -	$ -	*$ -*
70	***VEHICLES***	**$ 43,328**	**$ 4,333**	***$ 47,661***
70.01	Light Rail	$ -	$ -	*$ -*
70.02	Heavy Rail	$ -	$ -	*$ -*
70.03	Commuter Rail	$ 35,728	$ 3,573	*$ 39,301*
70.04	Bus	$ 7,600	$ 760	*$ 8,360*
70.05	Other	$ -	$ -	*$ -*
70.06	Non-revenue vehicles	$ -	$ -	*$ -*
70.07	Spare parts	$ -	$ -	*$ -*
80	***PROFESSIONAL SERVICES***	**$ 24,250**	**$ 7,275**	***$ 31,524***
80.01	Preliminary Engineering	$ 6,467	$ 1,940	*$ 8,407*
80.02	Final Design	$ 3,233	$ 970	*$ 4,203*
80.03	Project management for design and construction	$ 1,617	$ 485	*$ 2,102*
80.04	Construction administration & management	$ 8,083	$ 2,425	*$ 10,508*
80.05	Professional liability and other Non-Construction insurance	$ -	$ -	*$ -*
80.06	Legal, Permits, Review Fees, by other agencies, cities, etc.	$ 3,233	$ 970	*$ 4,203*
80.07	Surveys, testing, investigation	$ 1,617	$ 485	*$ 2,102*
80.08	Start up	$ -	$ -	*$ -*
PRELIMINARY CAPITAL COST ESTIMATE		**$ 154,737**	**$ 38,388**	***$ 193,125***

Table A7-4: Alternative 2B SCC Workbook

Westshore Corridor Transportation Project Alternative 2a: Sandusky to Tower City Preliminary Order of Magnitude Costs				
		All Costs in 2010 Dollars (x000)		
SCC	ITEM DESCRIPTION	ALLOCATED COSTS	ALLOCATED CONTINGENCY	*TOTAL COST*
10	***GUIDEWAY & TRACK ELEMENTS***	**$ 54,327**	**$ 16,298**	***$ 70,625***
10.01	Guideway: At-grade, exclusive right-of-way	$ 631	$ 189	*$ 820*
10.02	Guideway: At-grade, semi-exclusive (allows gross-traffic)	$ -	$ -	*$ -*
10.03	Guideway: At-grade in mixed traffic	$ -	$ -	*$ -*
10.04	Guideway: Aerial structure	$ 14,290	$ 4,287	*$ 18,577*
10.05	Guideway: Built-up fill	$ -	$ -	*$ -*
10.06	Guideway: Underground cut & cover	$ -	$ -	*$ -*
10.07	Guideway: Underground tunnel	$ -	$ -	*$ -*
10.08	Guideway: Retained cut or fill	$ -	$ -	*$ -*
10.09	Track: Direct fixation	$ -	$ -	*$ -*
10.10	Track: Embedded	$ -	$ -	*$ -*
10.11	Track: Ballasted	$ 28,327	$ 8,498	*$ 36,825*
10.12	Track: Special (switches, turnouts)	$ 11,079	$ 3,324	*$ 14,403*
10.13	Track: Vibration and noise dampening	$ -	$ -	*$ -*
20	***STATIONS, STOPS, TERMINALS, INTERMODAL***	**$ 14,229**	**$ 4,269**	***$ 18,498***
20.01	At-grade station, stop, shelter, mall, terminal, platform	$ 7,634	$ 2,290	*$ 9,924*
20.02	Aerial station, stop, shelter, mall, terminal, platform	$ -	$ -	*$ -*
20.03	Underground station, stop, shelter, mall, terminal, platform	$ -	$ -	*$ -*
20.04	Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	$ -	$ -	*$ -*
20.05	Joint development	$ -	$ -	*$ -*
20.06	Automobile parking multi-story structure	$ 5,462	$ 1,639	*$ 7,101*
20.07	Elevators, escalators	$ 1,133	$ 340	*$ 1,473*
30	***SUPPORT FACILITIES: YARDS, SHOPS, ADMIN BLDGS***	**$ 9,512**	**$ 2,854**	***$ 12,366***
30.01	Administration Building: Office, sales, storage, revenue counting	$ 1,988	$ 596	*$ 2,584*
30.02	Light Maintenance Facility	$ 3,670	$ 1,101	*$ 4,771*
30.03	Heavy Maintenance Facility	$ -	$ -	*$ -*
30.04	Storage or Maintenance of Way Building	$ -	$ -	*$ -*
30.05	Yard and yard track	$ 3,855	$ 1,156	*$ 5,011*
40	***SITEWORK & SPECIAL CONDITIONS***	**$ 6,547**	**$ 1,964**	***$ 8,511***
40.01	Demolition, clearing, earthwork	$ -	$ -	*$ -*
40.02	Site utilities, utility relocation	$ -	$ -	*$ -*
40.03	Haz. Mat'l, contam'd soil removal/mitigation, ground water treatments	$ -	$ -	*$ -*
40.04	Environmental mitigation, e.g. wetlands, historic, parks	$ -	$ -	*$ -*
40.05	Site structures including retaining walls, sound walls	$ -	$ -	*$ -*
40.06	Pedestrian/bike access and accommodation, landscaping	$ 1,607	$ 482	*$ 2,089*
40.07	Automobile, bus, van accessways including roads, parking lots	$ 4,940	$ 1,482	*$ 6,422*
40.08	Temporary Facilities and other indirect costs during construction	$ -	$ -	*$ -*
50	***SYSTEMS***	**$ 102,716**	**$ 30,815**	***$ 133,530***
50.01	Train controls and signals	$ 93,597	$ 28,079	*$ 121,676*
50.02	Traffic signals and crossing protection	$ 6,950	$ 2,085	*$ 9,035*
50.03	Traction power supply: substations	$ -	$ -	*$ -*
50.04	Traction power distribution: catenary and third rail	$ 196	$ 59	*$ 255*
50.05	Communications	$ -	$ -	*$ -*
50.06	Fare collection system and equipment	$ 1,973	$ 592	*$ 2,564*
50.07	Central Control	$ -	$ -	*$ -*
CONSTRUCTION SUBTOTAL (10-50)		**$ 187,331**	**$ 56,199**	***$ 243,530***
60	***ROW, LAND, EXISTING IMPROVEMENTS***	**$ 5,740**	**$ 2,296**	***$ 8,036***
60.01	Purchase or lease of real estate	$ 5,740	$ 2,296	*$ 8,036*
60.02	Relocation of existing households and businesses	$ -	$ -	*$ -*
70	***VEHICLES***	**$ 42,528**	**$ 4,253**	***$ 46,781***
70.01	Light Rail	$ -	$ -	*$ -*
70.02	Heavy Rail	$ -	$ -	*$ -*
70.03	Commuter Rail	$ 35,728	$ 3,573	*$ 39,301*
70.04	Bus	$ 6,800	$ 680	*$ 7,480*
70.05	Other	$ -	$ -	*$ -*
70.06	Non-revenue vehicles	$ -	$ -	*$ -*
70.07	Spare parts	$ -	$ -	*$ -*
80	***PROFESSIONAL SERVICES***	**$ 56,199**	**$ 16,860**	***$ 73,059***
80.01	Preliminary Engineering	$ 14,986	$ 4,496	*$ 19,482*
80.02	Final Design	$ 7,493	$ 2,248	*$ 9,741*
80.03	Project management for design and construction	$ 3,747	$ 1,124	*$ 4,871*
80.04	Construction administration & management	$ 18,733	$ 5,620	*$ 24,353*
80.05	Professional liability and other Non-Construction insurance	$ -	$ -	*$ -*
80.06	Legal, Permits, Review Fees, by other agencies, cities, etc.	$ 7,493	$ 2,248	*$ 9,741*
80.07	Surveys, testing, investigation	$ 3,747	$ 1,124	*$ 4,871*
80.08	Start up	$ -	$ -	*$ -*
PRELIMINARY CAPITAL COST ESTIMATE		**$ 291,798**	**$ 79,608**	***$ 371,406***

Table A7-5: Alternative 2C SCC Workbook

Westshore Corridor Transportation Project Alternative 2c: Lorain to Tower City Preliminary Order of Magnitude Costs				
		All Costs in 2010 Dollars (x000)		
SCC	ITEM DESCRIPTION	ALLOCATED COSTS	ALLOCATED CONTINGENCY	*TOTAL COST*
10	***GUIDEWAY & TRACK ELEMENTS***	**$ 14,237**	**$ 4,271**	***$ 18,508***
10.01	Guideway: At-grade, exclusive right-of-way	$ 610	$ 183	*$ 793*
10.02	Guideway: At-grade, semi-exclusive (allows gross-traffic)	$ -	$ -	*$ -*
10.03	Guideway: At-grade in mixed traffic	$ -	$ -	*$ -*
10.04	Guideway: Aerial structure	$ 7,500	$ 2,250	*$ 9,750*
10.05	Guideway: Built-up fill	$ -	$ -	*$ -*
10.06	Guideway: Underground cut & cover	$ -	$ -	*$ -*
10.07	Guideway: Underground tunnel	$ -	$ -	*$ -*
10.08	Guideway: Retained cut or fill	$ -	$ -	*$ -*
10.09	Track: Direct fixation	$ -	$ -	*$ -*
10.10	Track: Embedded	$ -	$ -	*$ -*
10.11	Track: Ballasted	$ 3,899	$ 1,170	*$ 5,068*
10.12	Track: Special (switches, turnouts)	$ 2,228	$ 668	*$ 2,897*
10.13	Track: Vibration and noise dampening	$ -	$ -	*$ -*
20	***STATIONS, STOPS, TERMINALS, INTERMODAL***	**$ 13,887**	**$ 4,166**	***$ 18,053***
20.01	At-grade station, stop, shelter, mall, terminal, platform	$ 7,292	$ 2,188	*$ 9,479*
20.02	Aerial station, stop, shelter, mall, terminal, platform	$ -	$ -	*$ -*
20.03	Underground station, stop, shelter, mall, terminal, platform	$ -	$ -	*$ -*
20.04	Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	$ -	$ -	*$ -*
20.05	Joint development	$ -	$ -	*$ -*
20.06	Automobile parking multi-story structure	$ 5,462	$ 1,639	*$ 7,101*
20.07	Elevators, escalators	$ 1,133	$ 340	*$ 1,473*
30	***SUPPORT FACILITIES: YARDS, SHOPS, ADMIN BLDGS***	**$ 9,512**	**$ 2,854**	***$ 12,366***
30.01	Administration Building: Office, sales, storage, revenue counting	$ 1,988	$ 596	*$ 2,584*
30.02	Light Maintenance Facility	$ 3,670	$ 1,101	*$ 4,771*
30.03	Heavy Maintenance Facility	$ -	$ -	*$ -*
30.04	Storage or Maintenance of Way Building	$ -	$ -	*$ -*
30.05	Yard and yard track	$ 3,855	$ 1,156	*$ 5,011*
40	***SITEWORK & SPECIAL CONDITIONS***	**$ 6,247**	**$ 1,874**	***$ 8,121***
40.01	Demolition, clearing, earthwork	$ 6	$ 2	*$ 8*
40.02	Site utilities, utility relocation	$ -	$ -	*$ -*
40.03	Haz. Mat'l, contam'd soil removal/mitigation, ground water treatments	$ -	$ -	*$ -*
40.04	Environmental mitigation, e.g. wetlands, historic, parks	$ -	$ -	*$ -*
40.05	Site structures including retaining walls, sound walls	$ -	$ -	*$ -*
40.06	Pedestrian/bike access and accommodation, landscaping	$ 1,455	$ 437	*$ 1,892*
40.07	Automobile, bus, van accessways including roads, parking lots	$ 4,786	$ 1,436	*$ 6,221*
40.08	Temporary Facilities and other indirect costs during construction	$ -	$ -	*$ -*
50	***SYSTEMS***	**$ 34,259**	**$ 10,278**	***$ 44,537***
50.01	Train controls and signals	$ 31,689	$ 9,507	*$ 41,195*
50.02	Traffic signals and crossing protection	$ 250	$ 75	*$ 325*
50.03	Traction power supply: substations	$ -	$ -	*$ -*
50.04	Traction power distribution: catenary and third rail	$ 196	$ 59	*$ 255*
50.05	Communications	$ -	$ -	*$ -*
50.06	Fare collection system and equipment	$ 2,124	$ 637	*$ 2,762*
50.07	Central Control	$ -	$ -	*$ -*
CONSTRUCTION SUBTOTAL (10-50)		**$ 78,142**	**$ 23,443**	***$ 101,584***
60	***ROW, LAND, EXISTING IMPROVEMENTS***	**$ 4,891**	**$ 1,956**	***$ 6,847***
60.01	Purchase or lease of real estate	$ 4,891	$ 1,956	*$ 6,847*
60.02	Relocation of existing households and businesses	$ -	$ -	*$ -*
70	***VEHICLES***	**$ 43,328**	**$ 4,333**	***$ 47,661***
70.01	Light Rail	$ -	$ -	*$ -*
70.02	Heavy Rail	$ -	$ -	*$ -*
70.03	Commuter Rail	$ 35,728	$ 3,573	*$ 39,301*
70.04	Bus	$ 7,600	$ 760	*$ 8,360*
70.05	Other	$ -	$ -	*$ -*
70.06	Non-revenue vehicles	$ -	$ -	*$ -*
70.07	Spare parts	$ -	$ -	*$ -*
80	***PROFESSIONAL SERVICES***	**$ 23,443**	**$ 7,033**	***$ 30,475***
80.01	Preliminary Engineering	$ 6,251	$ 1,875	*$ 8,127*
80.02	Final Design	$ 3,126	$ 938	*$ 4,063*
80.03	Project management for design and construction	$ 1,563	$ 469	*$ 2,032*
80.04	Construction administration & management	$ 7,814	$ 2,344	*$ 10,158*
80.05	Professional liability and other Non-Construction insurance	$ -	$ -	*$ -*
80.06	Legal, Permits, Review Fees, by other agencies, cities, etc.	$ 3,126	$ 938	*$ 4,063*
80.07	Surveys, testing, investigation	$ 1,563	$ 469	*$ 2,032*
80.08	Start up	$ -	$ -	*$ -*
PRELIMINARY CAPITAL COST ESTIMATE		**$ 149,803**	**$ 36,764**	***$ 186,567***

Table A7-6: Alternative 3A SCC Workbook

Westshore Corridor Transportation Project Alternative 3a: Sandusky to West Blvd. Preliminary Order of Magnitude Costs					
			All Costs in 2010 Dollars (x000)		
SCC	ITEM DESCRIPTION	ALLOCATED COSTS	ALLOCATED CONTINGENCY	*TOTAL COST*	
10	***GUIDEWAY & TRACK ELEMENTS***	**$ 42,277**	**$ 12,683**	***$ 54,960***	
10.01	Guideway: At-grade, exclusive right-of-way	$ 121	$ 36	*$ 158*	
10.02	Guideway: At-grade, semi-exclusive (allows gross-traffic)	$ -	$ -	*$ -*	
10.03	Guideway: At-grade in mixed traffic	$ -	$ -	*$ -*	
10.04	Guideway: Aerial structure	$ 6,790	$ 2,037	*$ 8,827*	
10.05	Guideway: Built-up fill	$ -	$ -	*$ -*	
10.06	Guideway: Underground cut & cover	$ -	$ -	*$ -*	
10.07	Guideway: Underground tunnel	$ -	$ -	*$ -*	
10.08	Guideway: Retained cut or fill	$ -	$ -	*$ -*	
10.09	Track: Direct fixation	$ -	$ -	*$ -*	
10.10	Track: Embedded	$ -	$ -	*$ -*	
10.11	Track: Ballasted	$ 25,339	$ 7,602	*$ 32,940*	
10.12	Track: Special (switches, turnouts)	$ 10,027	$ 3,008	*$ 13,035*	
10.13	Track: Vibration and noise dampening	$ -	$ -	*$ -*	
20	***STATIONS, STOPS, TERMINALS, INTERMODAL***	**$ 13,542**	**$ 4,063**	***$ 17,605***	
20.01	At-grade station, stop, shelter, mall, terminal, platform	$ 7,513	$ 2,254	*$ 9,768*	
20.02	Aerial station, stop, shelter, mall, terminal, platform	$ -	$ -	*$ -*	
20.03	Underground station, stop, shelter, mall, terminal, platform	$ -	$ -	*$ -*	
20.04	Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	$ -	$ -	*$ -*	
20.05	Joint development	$ -	$ -	*$ -*	
20.06	Automobile parking multi-story structure	$ 5,462	$ 1,639	*$ 7,101*	
20.07	Elevators, escalators	$ 567	$ 170	*$ 736*	
30	***SUPPORT FACILITIES: YARDS, SHOPS, ADMIN BLDGS***	**$ 11,037**	**$ 3,311**	***$ 14,348***	
30.01	Administration Building: Office, sales, storage, revenue counting	$ 2,650	$ 795	*$ 3,445*	
30.02	Light Maintenance Facility	$ 3,670	$ 1,101	*$ 4,771*	
30.03	Heavy Maintenance Facility	$ -	$ -	*$ -*	
30.04	Storage or Maintenance of Way Building	$ -	$ -	*$ -*	
30.05	Yard and yard track	$ 4,717	$ 1,415	*$ 6,132*	
40	***SITEWORK & SPECIAL CONDITIONS***	**$ 5,375**	**$ 1,612**	***$ 6,987***	
40.01	Demolition, clearing, earthwork	$ -	$ -	*$ -*	
40.02	Site utilities, utility relocation	$ -	$ -	*$ -*	
40.03	Haz. Mat'l, contam'd soil removal/mitigation, ground water treatments	$ -	$ -	*$ -*	
40.04	Environmental mitigation, e.g. wetlands, historic, parks	$ -	$ -	*$ -*	
40.05	Site structures including retaining walls, sound walls	$ -	$ -	*$ -*	
40.06	Pedestrian/bike access and accommodation, landscaping	$ 556	$ 167	*$ 723*	
40.07	Automobile, bus, van accessways including roads, parking lots	$ 4,819	$ 1,446	*$ 6,264*	
40.08	Temporary Facilities and other indirect costs during construction	$ -	$ -	*$ -*	
50	***SYSTEMS***	**$ 94,454**	**$ 28,336**	***$ 122,790***	
50.01	Train controls and signals	$ 85,835	$ 25,751	*$ 111,586*	
50.02	Traffic signals and crossing protection	$ 6,950	$ 2,085	*$ 9,035*	
50.03	Traction power supply: substations	$ -	$ -	*$ -*	
50.04	Traction power distribution: catenary and third rail	$ -	$ -	*$ -*	
50.05	Communications	$ -	$ -	*$ -*	
50.06	Fare collection system and equipment	$ 1,669	$ 501	*$ 2,170*	
50.07	Central Control	$ -	$ -	*$ -*	
CONSTRUCTION SUBTOTAL (10-50)		**$ 166,686**	**$ 50,006**	***$ 216,691***	
60	***ROW, LAND, EXISTING IMPROVEMENTS***	**$ 7,177**	**$ 2,871**	***$ 10,048***	
60.01	Purchase or lease of real estate	$ 7,177	$ 2,871	*$ 10,048*	
60.02	Relocation of existing households and businesses	$ -	$ -	*$ -*	
70	***VEHICLES***	**$ 43,328**	**$ 4,333**	***$ 47,661***	
70.01	Light Rail	$ -	$ -	*$ -*	
70.02	Heavy Rail	$ -	$ -	*$ -*	
70.03	Commuter Rail	$ 35,728	$ 3,573	*$ 39,301*	
70.04	Bus	$ 7,600	$ 760	*$ 8,360*	
70.05	Other	$ -	$ -	*$ -*	
70.06	Non-revenue vehicles	$ -	$ -	*$ -*	
70.07	Spare parts	$ -	$ -	*$ -*	
80	***PROFESSIONAL SERVICES***	**$ 50,006**	**$ 15,002**	***$ 65,007***	
80.01	Preliminary Engineering	$ 13,335	$ 4,000	*$ 17,335*	
80.02	Final Design	$ 6,667	$ 2,000	*$ 8,668*	
80.03	Project management for design and construction	$ 3,334	$ 1,000	*$ 4,334*	
80.04	Construction administration & management	$ 16,669	$ 5,001	*$ 21,669*	
80.05	Professional liability and other Non-Construction insurance	$ -	$ -	*$ -*	
80.06	Legal, Permits, Review Fees, by other agencies, cities, etc.	$ 6,667	$ 2,000	*$ 8,668*	
80.07	Surveys, testing, investigation	$ 3,334	$ 1,000	*$ 4,334*	
80.08	Start up	$ -	$ -	*$ -*	
PRELIMINARY CAPITAL COST ESTIMATE		**$ 267,196**	**$ 72,211**	***$ 339,407***	

Table A7-7: Alternative 3C SCC Workbook

Westshore Corridor Transportation Project Alternative 3c: Lorain to West Blvd. Preliminary Order of Magnitude Costs				
		All Costs in 2010 Dollars (x000)		
SCC	ITEM DESCRIPTION	ALLOCATED COSTS	ALLOCATED CONTINGENCY	*TOTAL COST*
10	***GUIDEWAY & TRACK ELEMENTS***	**$ 2,187**	**$ 656**	***$ 2,843***
10.01	Guideway: At-grade, exclusive right-of-way	$ 101	$ 30	*$ 131*
10.02	Guideway: At-grade, semi-exclusive (allows gross-traffic)	$ -	$ -	*$ -*
10.03	Guideway: At-grade in mixed traffic	$ -	$ -	*$ -*
10.04	Guideway: Aerial structure	$ -	$ -	*$ -*
10.05	Guideway: Built-up fill	$ -	$ -	*$ -*
10.06	Guideway: Underground cut & cover	$ -	$ -	*$ -*
10.07	Guideway: Underground tunnel	$ -	$ -	*$ -*
10.08	Guideway: Retained cut or fill	$ -	$ -	*$ -*
10.09	Track: Direct fixation	$ -	$ -	*$ -*
10.10	Track: Embedded	$ -	$ -	*$ -*
10.11	Track: Ballasted	$ 910	$ 273	*$ 1,183*
10.12	Track: Special (switches, turnouts)	$ 1,176	$ 353	*$ 1,529*
10.13	Track: Vibration and noise dampening	$ -	$ -	*$ -*
20	***STATIONS, STOPS, TERMINALS, INTERMODAL***	**$ 13,200**	**$ 3,960**	***$ 17,159***
20.01	At-grade station, stop, shelter, mall, terminal, platform	$ 7,171	$ 2,151	*$ 9,322*
20.02	Aerial station, stop, shelter, mall, terminal, platform	$ -	$ -	*$ -*
20.03	Underground station, stop, shelter, mall, terminal, platform	$ -	$ -	*$ -*
20.04	Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	$ -	$ -	*$ -*
20.05	Joint development	$ -	$ -	*$ -*
20.06	Automobile parking multi-story structure	$ 5,462	$ 1,639	*$ 7,101*
20.07	Elevators, escalators	$ 567	$ 170	*$ 736*
30	***SUPPORT FACILITIES: YARDS, SHOPS, ADMIN BLDGS***	**$ 11,037**	**$ 3,311**	***$ 14,348***
30.01	Administration Building: Office, sales, storage, revenue counting	$ 2,650	$ 795	*$ 3,445*
30.02	Light Maintenance Facility	$ 3,670	$ 1,101	*$ 4,771*
30.03	Heavy Maintenance Facility	$ -	$ -	*$ -*
30.04	Storage or Maintenance of Way Building	$ -	$ -	*$ -*
30.05	Yard and yard track	$ 4,717	$ 1,415	*$ 6,132*
40	***SITEWORK & SPECIAL CONDITIONS***	**$ 5,075**	**$ 1,522**	***$ 6,597***
40.01	Demolition, clearing, earthwork	$ 6	$ 2	*$ 8*
40.02	Site utilities, utility relocation	$ -	$ -	*$ -*
40.03	Haz. Mat'l, contam'd soil removal/mitigation, ground water treatments	$ -	$ -	*$ -*
40.04	Environmental mitigation, e.g. wetlands, historic, parks	$ -	$ -	*$ -*
40.05	Site structures including retaining walls, sound walls	$ -	$ -	*$ -*
40.06	Pedestrian/bike access and accommodation, landscaping	$ 405	$ 121	*$ 526*
40.07	Automobile, bus, van accessways including roads, parking lots	$ 4,664	$ 1,399	*$ 6,063*
40.08	Temporary Facilities and other indirect costs during construction	$ -	$ -	*$ -*
50	***SYSTEMS***	**$ 25,998**	**$ 7,799**	***$ 33,797***
50.01	Train controls and signals	$ 23,927	$ 7,178	*$ 31,105*
50.02	Traffic signals and crossing protection	$ 250	$ 75	*$ 325*
50.03	Traction power supply: substations	$ -	$ -	*$ -*
50.04	Traction power distribution: catenary and third rail	$ -	$ -	*$ -*
50.05	Communications	$ -	$ -	*$ -*
50.06	Fare collection system and equipment	$ 1,821	$ 546	*$ 2,367*
50.07	Central Control	$ -	$ -	*$ -*
CONSTRUCTION SUBTOTAL (10-50)		**$ 57,496**	**$ 17,249**	***$ 74,745***
60	***ROW, LAND, EXISTING IMPROVEMENTS***	**$ 6,328**	**$ 2,531**	***$ 8,859***
60.01	Purchase or lease of real estate	$ 6,328	$ 2,531	*$ 8,859*
60.02	Relocation of existing households and businesses	$ -	$ -	*$ -*
70	***VEHICLES***	**$ 46,528**	**$ 4,653**	***$ 51,181***
70.01	Light Rail	$ -	$ -	*$ -*
70.02	Heavy Rail	$ -	$ -	*$ -*
70.03	Commuter Rail	$ 35,728	$ 3,573	*$ 39,301*
70.04	Bus	$ 10,800	$ 1,080	*$ 11,880*
70.05	Other	$ -	$ -	*$ -*
70.06	Non-revenue vehicles	$ -	$ -	*$ -*
70.07	Spare parts	$ -	$ -	*$ -*
80	***PROFESSIONAL SERVICES***	**$ 17,249**	**$ 5,175**	***$ 22,424***
80.01	Preliminary Engineering	$ 4,600	$ 1,380	*$ 5,980*
80.02	Final Design	$ 2,300	$ 690	*$ 2,990*
80.03	Project management for design and construction	$ 1,150	$ 345	*$ 1,495*
80.04	Construction administration & management	$ 5,750	$ 1,725	*$ 7,475*
80.05	Professional liability and other Non-Construction insurance	$ -	$ -	*$ -*
80.06	Legal, Permits, Review Fees, by other agencies, cities, etc.	$ 2,300	$ 690	*$ 2,990*
80.07	Surveys, testing, investigation	$ 1,150	$ 345	*$ 1,495*
80.08	Start up	$ -	$ -	*$ -*
PRELIMINARY CAPITAL COST ESTIMATE		**$ 127,601**	**$ 29,607**	***$ 157,208***

Table A7-8: Alternatives 4 and 5 SCC Workbook

Westshore Corridor Transportation Project Alternative 4 & 5: Sandusky to Public Sq. (Alt 4) or Westlake P&R (Alt 5) Preliminary Order of Magnitude Costs				
		All Costs in 2010 Dollars (x000)		
SCC	ITEM DESCRIPTION	ALLOCATED COSTS	ALLOCATED CONTINGENCY	*TOTAL COST*
10	***GUIDEWAY & TRACK ELEMENTS***	**$ -**	**$ -**	***$ -***
10.01	Guideway: At-grade, exclusive right-of-way	$ -	$ -	*$ -*
10.02	Guideway: At-grade, semi-exclusive (allows gross-traffic)	$ -	$ -	*$ -*
10.03	Guideway: At-grade in mixed traffic	$ -	$ -	*$ -*
10.04	Guideway: Aerial structure	$ -	$ -	*$ -*
10.05	Guideway: Built-up fill	$ -	$ -	*$ -*
10.06	Guideway: Underground cut & cover	$ -	$ -	*$ -*
10.07	Guideway: Underground tunnel	$ -	$ -	*$ -*
10.08	Guideway: Retained cut or fill	$ -	$ -	*$ -*
10.09	Track: Direct fixation	$ -	$ -	*$ -*
10.10	Track: Embedded	$ -	$ -	*$ -*
10.11	Track: Ballasted	$ -	$ -	*$ -*
10.12	Track: Special (switches, turnouts)	$ -	$ -	*$ -*
10.13	Track: Vibration and noise dampening	$ -	$ -	*$ -*
20	***STATIONS, STOPS, TERMINALS, INTERMODAL***	**$ 3,451**	**$ 1,035**	***$ 4,487***
20.01	At-grade station, stop, shelter, mall, terminal, platform	$ 3,451	$ 1,035	*$ 4,487*
20.02	Aerial station, stop, shelter, mall, terminal, platform	$ -	$ -	*$ -*
20.03	Underground station, stop, shelter, mall, terminal, platform	$ -	$ -	*$ -*
20.04	Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	$ -	$ -	*$ -*
20.05	Joint development	$ -	$ -	*$ -*
20.06	Automobile parking multi-story structure	$ -	$ -	*$ -*
20.07	Elevators, escalators	$ -	$ -	*$ -*
30	***SUPPORT FACILITIES: YARDS, SHOPS, ADMIN BLDGS***	**$ -**	**$ -**	***$ -***
30.01	Administration Building: Office, sales, storage, revenue counting	$ -	$ -	*$ -*
30.02	Light Maintenance Facility	$ -	$ -	*$ -*
30.03	Heavy Maintenance Facility	$ -	$ -	*$ -*
30.04	Storage or Maintenance of Way Building	$ -	$ -	*$ -*
30.05	Yard and yard track	$ -	$ -	*$ -*
40	***SITEWORK & SPECIAL CONDITIONS***	**$ 5,302**	**$ 1,591**	***$ 6,892***
40.01	Demolition, clearing, earthwork	$ 18	$ 5	*$ 23*
40.02	Site utilities, utility relocation	$ -	$ -	*$ -*
40.03	Haz. Mat'l, contam'd soil removal/mitigation, ground water treatments	$ -	$ -	*$ -*
40.04	Environmental mitigation, e.g. wetlands, historic, parks	$ -	$ -	*$ -*
40.05	Site structures including retaining walls, sound walls	$ -	$ -	*$ -*
40.06	Pedestrian/bike access and accommodation, landscaping	$ -	$ -	*$ -*
40.07	Automobile, bus, van accessways including roads, parking lots	$ 5,284	$ 1,585	*$ 6,869*
40.08	Temporary Facilities and other indirect costs during construction	$ -	$ -	*$ -*
50	***SYSTEMS***	**$ 1,214**	**$ 364**	***$ 1,578***
50.01	Train controls and signals	$ -	$ -	*$ -*
50.02	Traffic signals and crossing protection	$ -	$ -	*$ -*
50.03	Traction power supply: substations	$ -	$ -	*$ -*
50.04	Traction power distribution: catenary and third rail	$ -	$ -	*$ -*
50.05	Communications	$ -	$ -	*$ -*
50.06	Fare collection system and equipment	$ 1,214	$ 364	*$ 1,578*
50.07	Central Control	$ -	$ -	*$ -*
CONSTRUCTION SUBTOTAL (10-50)		**$ 9,967**	**$ 2,990**	***$ 12,957***
60	***ROW, LAND, EXISTING IMPROVEMENTS***	**$ 2,828**	**$ 1,131**	***$ 3,959***
60.01	Purchase or lease of real estate	$ 2,828	$ 1,131	*$ 3,959*
60.02	Relocation of existing households and businesses	$ -	$ -	*$ -*
70	***VEHICLES***	**$ 13,200**	**$ 1,320**	***$ 14,520***
70.01	Light Rail	$ -	$ -	*$ -*
70.02	Heavy Rail	$ -	$ -	*$ -*
70.03	Commuter Rail	$ -	$ -	*$ -*
70.04	Bus	$ 13,200	$ 1,320	*$ 14,520*
70.05	Other	$ -	$ -	*$ -*
70.06	Non-revenue vehicles	$ -	$ -	*$ -*
70.07	Spare parts	$ -	$ -	*$ -*
80	***PROFESSIONAL SERVICES***	**$ 2,990**	**$ 897**	***$ 3,887***
80.01	Preliminary Engineering	$ 797	$ 239	*$ 1,037*
80.02	Final Design	$ 399	$ 120	*$ 518*
80.03	Project management for design and construction	$ 199	$ 60	*$ 259*
80.04	Construction administration & management	$ 997	$ 299	*$ 1,296*
80.05	Professional liability and other Non-Construction insurance	$ -	$ -	*$ -*
80.06	Legal, Permits, Review Fees, by other agencies, cities, etc.	$ 399	$ 120	*$ 518*
80.07	Surveys, testing, investigation	$ 199	$ 60	*$ 259*
80.08	Start up	$ -	$ -	*$ -*
PRELIMINARY CAPITAL COST ESTIMATE		**$ 28,985**	**$ 6,338**	***$ 35,323***

Westshore Corridor Transportation Project

West Shore Corridor Alternatives Analysis Study

Chapter 9 - Appendix

Ridership Forecast by Alternative

June 2013

Appendix A9 – ARRF Model Output

Appendix A9 presents the ARRF model output used to estimate rail ridership in Alternatives 1A-3C. Note the output shown in these tables is total unlinked trips whereas the totals shown in the Ridership Forecast Results section are one way trips[1].

[1] One way trips are calculated as total unlinked trips / 2, with the assumption that one way AM trips will return using the same service in the PM.

Table A9-1: Model Output for Alternative 1A

ARRF II v1 (Combined LRT/CR Model)

Project:	Westshore AA
Alternative:	Alt 1a Sandusky to Lakefront
Date:	3/6/2011

Input Data

1. System Operational Characteristics	
1a. Directional Route Miles	115.0
1b. Weekday Train Revenue Miles	
1c. Weekday Train Revenue Hours	
1d. Average Speed in MPH (if blank, computed from 1b and 1c)	41.0
1e. Trains per day per direction (if blank computed from 1a and 1b)	3.0
2. CTPP Flows	
2a. Home within 2 miles of any station and Work within 1 mile of any station	
2.a.i Employment <50,000 / square mile	12,595
2.a.ii Employment >50,000 / square mile	9,757
2b. Home within 6 miles of a PNR station and Work within 1 mile of any station	
2.b.i Employment <50,000 / square mile	21,938
2.b.li Employment >50,000 / square mile	16,220
3. Suburban-CBD Service flag	
3a. Code 1 if service is designed for connecting suburban areas to CBD otherwise, code 0	1.0

Parameters

1. Elasticity Base Speed	28.072
2. Demand elasticity with respect to speed	0.400
3. Normalization Factor on Speed Adjustment	0.978
4. Minimum Speed to Adjust	1.000
5. Maximum Speed to Adjust	1,000.000
6. Elasticity Base Average Trains/Day (per direction)	58.436
7. Demand elasticity with respect to Trains/Day	0.490
8. Normalization Factor of Trains/Day	0.826
9. Minimum Trains/Day to Adjustment	1.000
10. Maximum Trains/Day to Adjustment	1,000.000
11. Work Trip Train Frequency Adjustment for Infrequent Trains - Definition (Trains/Day)	52.000
12. Work Trip Train Frequency Adjustment for Infrequent Trains - Adjustment	0.550
13. Non-Work Trip Adjustment for Long Corridors - Dir. Rte Miles at mid-point of adj.	140.000
14. Non-Work Trip Adjustment of Long Corridors - Coefficient (slope) on adjustment	0.050
15. Non-Work Trip Adjustment of Long Corridors - Minimum adjustment	0.550
16. Adjustment for predominantly suburban/CBD service	0.680
17. Unlinked Walk/Bus/KNR Access to Work Trips/CTPP Flow - <50,000 / square mile	0.109
18. Unlinked Walk/Bus/KNR Access to Work Trips/CTPP Flow - >50,000 / square mile	0.149
19. Unlinked PNR Access to Work Trips/CTPP Flow - <50,000 / square mile	0.031
20. Unlinked PNR Access to Work Trips/CTPP Flow - >50,000 / square mile	0.128
21. Unlinked Walk/Bus/KNR Access to Non-Work Trips/CTPP Flow - <50,000 / square	0.205
22. Unlinked Walk/Bus/KNR Access to Non-Work Trips/CTPP Flow - >50,000 / square	0.158
23. Unlinked PNR Access to Non-Work Trips/CTPP Flow - <50,000 / square mile	0.017
24. Unlinked PNR Access to Non-Work Trips/CTPP Flow - >50,000 / square mile	0.036

Level-of-Service Service Factor

Average Speed (Item 1d if coded, otherwise 1b/1c)	41.00	
Minimum Normalized Speed Adjustment	0.2607	
Maximum Normalized Speed Adjustment	1.7954	
Computed Speed Adjustment		1.1497
Normalized Speed Adjustment		1.1753
Bounded Speed Adjustment		1.1753
Trains Per Day (Item 1e if coded, otherwise 1b/1a)	3.00	
Minimum Normalized Trains Per Day Adjustment	0.0641	
Maximum Normalized Trains per Day Adjustment	2.2657	
Adjustment for Trains Per Day		0.1157
Normalized Trains Per Day Adjustment		0.1401
Bounded Trains Per Day Adjustment		0.1401
Total Level-of-Service Factor		0.1646

Other Adjustments

Infrequent Trains per Day Max Elasticity	0.5500	
Work Trip Train Frequency Adjustment for Infrequent Service		2.3171
Non-Work Demand Adjustment for Long Corridors		0.5500
Adjustment for Non-CBD Trips for suburban-CBD-oriented Services		0.6800

Rail Unlinked Trips

Daily Work Walk/Bus/KNR Access unlinked trips to employment <50,000/sq mile	356
Daily Work Walk/Bus/KNR Access unlinked trips to employment >50,000/sq mile	555
Daily Work PNR Access unlinked trips to employment <50,000/sq mile	261
Daily Work PNR Access unlinked trips to employment >50,000/sq mile	795
Subtotal Work Daily unlinked trips	1,966
Daily Non-Work Walk/Bus/KNR Access unlinked trips to employment <50,000/sq mile	159
Daily Non-Work Walk/Bus/KNR Access unlinked trips to employment >50,000/sq mile	140
Daily Non-Work PNR Access unlinked trips to employment <50,000/sq mile	34
Daily Non-Work PNR Access unlinked trips to employment >50,000/sq mile	52
Subtotal Non-Work Daily unlinked trips	384
Total Daily unlinked trips	2,351

Table A9-2: Model Output for Alternative 1C

ARRF II v1 (Combined LRT/CR Model)

Project:	Westshore AA
Alternative:	Alt 1c Lorain to Lakefront
Date:	3/6/2011

Input Data

1. System Operational Characteristics	
1a. Directional Route Miles	49.2
1b. Weekday Train Revenue Miles	
1c. Weekday Train Revenue Hours	
1d. Average Speed in MPH (if blank, computed from 1b and 1c)	34.3
1e. Trains per day per direction (if blank computed from 1a and 1b)	3.0
2. CTPP Flows	
2a. Home within 2 miles of any station and Work within 1 mile of any station	
2.a.i Employment <50,000 / square mile	12,255
2.a.ii Employment >50,000 / square mile	9,729
2b. Home within 6 miles of a PNR station and Work within 1 mile of any station	
2.b.i Employment <50,000 / square mile	20,936
2.b.li Employment >50,000 / square mile	16,128
3. Suburban-CBD Service flag	
3a. Code 1 if service is designed for connecting suburban areas to CBD otherwise, code 0	1.0

Parameters

1. Elasticity Base Speed	28.072
2. Demand elasticity with respect to speed	0.400
3. Normalization Factor on Speed Adjustment	0.978
4. Minimum Speed to Adjust	1.000
5. Maximum Speed to Adjust	1,000.000
6. Elasticity Base Average Trains/Day (per direction)	58.436
7. Demand elasticity with respect to Trains/Day	0.490
8. Normalization Factor of Trains/Day	0.826
9. Minimum Trains/Day to Adjustment	1.000
10. Maximum Trains/Day to Adjustment	1,000.000
11. Work Trip Train Frequency Adjustment for Infrequent Trains - Definition (Trains/Day)	52.000
12. Work Trip Train Frequency Adjustment for Infrequent Trains - Adjustment	0.550
13. Non-Work Trip Adjustment for Long Corridors - Dir. Rte Miles at mid-point of adj.	140.000
14. Non-Work Trip Adjustment of Long Corridors - Coefficient (slope) on adjustment	0.050
15. Non-Work Trip Adjustment of Long Corridors - Minimum adjustment	0.550
16. Adjustment for predominantly suburban/CBD service	0.680
17. Unlinked Walk/Bus/KNR Access to Work Trips/CTPP Flow - <50,000 / square mile	0.109
18. Unlinked Walk/Bus/KNR Access to Work Trips/CTPP Flow - >50,000 / square mile	0.149
19. Unlinked PNR Access to Work Trips/CTPP Flow - <50,000 / square mile	0.031
20. Unlinked PNR Access to Work Trips/CTPP Flow - >50,000 / square mile	0.128
21. Unlinked Walk/Bus/KNR Access to Non-Work Trips/CTPP Flow - <50,000 / square	0.205
22. Unlinked Walk/Bus/KNR Access to Non-Work Trips/CTPP Flow - >50,000 / square	0.158
23. Unlinked PNR Access to Non-Work Trips/CTPP Flow - <50,000 / square mile	0.017
24. Unlinked PNR Access to Non-Work Trips/CTPP Flow - >50,000 / square mile	0.036

Level-of-Service Service Factor

Average Speed (Item 1d if coded, otherwise 1b/1c)	34.30	
Minimum Normalized Speed Adjustment	0.2607	
Maximum Normalized Speed Adjustment	1.7954	
Computed Speed Adjustment		1.0799
Normalized Speed Adjustment		1.1039
Bounded Speed Adjustment		1.1039
Trains Per Day (Item 1e if coded, otherwise 1b/1a)	3.00	
Minimum Normalized Trains Per Day Adjustment	0.0641	
Maximum Normalized Trains per Day Adjustment	2.2657	
Adjustment for Trains Per Day		0.1157
Normalized Trains Per Day Adjustment		0.1401
Bounded Trains Per Day Adjustment		0.1401
Total Level-of-Service Factor		0.1546

Other Adjustments

Infrequent Trains per Day Max Elasticity	0.5500	
Work Trip Train Frequency Adjustment for Infrequent Service		2.3171
Non-Work Demand Adjustment for Long Corridors		0.5500
Adjustment for Non-CBD Trips for suburban-CBD-oriented Services		0.6800

Rail Unlinked Trips

Daily Work Walk/Bus/KNR Access unlinked trips to employment <50,000/sq mile	326
Daily Work Walk/Bus/KNR Access unlinked trips to employment >50,000/sq mile	520
Daily Work PNR Access unlinked trips to employment <50,000/sq mile	234
Daily Work PNR Access unlinked trips to employment >50,000/sq mile	742
Subtotal Work Daily unlinked trips	1,821
Daily Non-Work Walk/Bus/KNR Access unlinked trips to employment <50,000/sq mile	145
Daily Non-Work Walk/Bus/KNR Access unlinked trips to employment >50,000/sq mile	131
Daily Non-Work PNR Access unlinked trips to employment <50,000/sq mile	30
Daily Non-Work PNR Access unlinked trips to employment >50,000/sq mile	49
Subtotal Non-Work Daily unlinked trips	355
Total Daily unlinked trips	2,176

Table A9-3: Model Output for Alternative 2A

ARRF II v1 (Combined LRT/CR Model)

Project:	Westshore AA
Alternative:	Alt 2a Sandusky to Tower City
Date:	3/4/2011

Input Data

1. System Operational Characteristics	
1a. Directional Route Miles	114.0
1b. Weekday Train Revenue Miles	
1c. Weekday Train Revenue Hours	
1d. Average Speed in MPH (if blank, computed from 1b and 1c)	40.2
1e. Trains per day per direction (if blank computed from 1a and 1b)	3.0
2. CTPP Flows	
2a. Home within 2 miles of any station and Work within 1 mile of any station	
2.a.i Employment <50,000 / square mile	12,810
2.a.ii Employment >50,000 / square mile	11,255
2b. Home within 6 miles of a PNR station and Work within 1 mile of any station	
2.b.i Employment <50,000 / square mile	22,085
2.b.li Employment >50,000 / square mile	18,486
3. Suburban-CBD Service flag	
3a. Code 1 if service is designed for connecting suburban areas to CBD otherwise, code 0	1.0

Parameters

1. Elasticity Base Speed	28.072
2. Demand elasticity with respect to speed	0.400
3. Normalization Factor on Speed Adjustment	0.978
4. Minimum Speed to Adjust	1.000
5. Maximum Speed to Adjust	1,000.000
6. Elasticity Base Average Trains/Day (per direction)	58.436
7. Demand elasticity with respect to Trains/Day	0.490
8. Normalization Factor of Trains/Day	0.826
9. Minimum Trains/Day to Adjustment	1.000
10. Maximum Trains/Day to Adjustment	1,000.000
11. Work Trip Train Frequency Adjustment for Infrequent Trains - Definition (Trains/Day)	52.000
12. Work Trip Train Frequency Adjustment for Infrequent Trains - Adjustment	0.550
13. Non-Work Trip Adjustment for Long Corridors - Dir. Rte Miles at mid-point of adj.	140.000
14. Non-Work Trip Adjustment of Long Corridors - Coefficient (slope) on adjustment	0.050
15. Non-Work Trip Adjustment of Long Corridors - Minimum adjustment	0.550
16. Adjustment for predominantly suburban/CBD service	0.680
17. Unlinked Walk/Bus/KNR Access to Work Trips/CTPP Flow - <50,000 / square mile	0.109
18. Unlinked Walk/Bus/KNR Access to Work Trips/CTPP Flow - >50,000 / square mile	0.149
19. Unlinked PNR Access to Work Trips/CTPP Flow - <50,000 / square mile	0.031
20. Unlinked PNR Access to Work Trips/CTPP Flow - >50,000 / square mile	0.128
21. Unlinked Walk/Bus/KNR Access to Non-Work Trips/CTPP Flow - <50,000 / square	0.205
22. Unlinked Walk/Bus/KNR Access to Non-Work Trips/CTPP Flow - >50,000 / square	0.158
23. Unlinked PNR Access to Non-Work Trips/CTPP Flow - <50,000 / square mile	0.017
24. Unlinked PNR Access to Non-Work Trips/CTPP Flow - >50,000 / square mile	0.036

Level-of-Service Service Factor

Average Speed (Item 1d if coded, otherwise 1b/1c)	40.20	
Minimum Normalized Speed Adjustment	0.2607	
Maximum Normalized Speed Adjustment	1.7954	
Computed Speed Adjustment		1.1421
Normalized Speed Adjustment		1.1675
Bounded Speed Adjustment		1.1675
Trains Per Day (Item 1e if coded, otherwise 1b/1a)	3.00	
Minimum Normalized Trains Per Day Adjustment	0.0641	
Maximum Normalized Trains per Day Adjustment	2.2657	
Adjustment for Trains Per Day		0.1157
Normalized Trains Per Day Adjustment		0.1401
Bounded Trains Per Day Adjustment		0.1401
Total Level-of-Service Factor		0.1635

Other Adjustments

Infrequent Trains per Day Max Elasticity	0.5500	
Work Trip Train Frequency Adjustment for Infrequent Service		2.3171
Non-Work Demand Adjustment for Long Corridors		0.5500
Adjustment for Non-CBD Trips for suburban-CBD-oriented Services		0.6800

Rail Unlinked Trips

Daily Work Walk/Bus/KNR Access unlinked trips to employment <50,000/sq mile	360
Daily Work Walk/Bus/KNR Access unlinked trips to employment >50,000/sq mile	636
Daily Work PNR Access unlinked trips to employment <50,000/sq mile	261
Daily Work PNR Access unlinked trips to employment >50,000/sq mile	900
Subtotal Work Daily unlinked trips	2,156
Daily Non-Work Walk/Bus/KNR Access unlinked trips to employment <50,000/sq mile	161
Daily Non-Work Walk/Bus/KNR Access unlinked trips to employment >50,000/sq mile	160
Daily Non-Work PNR Access unlinked trips to employment <50,000/sq mile	34
Daily Non-Work PNR Access unlinked trips to employment >50,000/sq mile	59
Subtotal Non-Work Daily unlinked trips	413
Total Daily unlinked trips	2,569

Table A9-4: Model Output for Alternative 2C

ARRF II v1 (Combined LRT/CR Model)

Project:	Westshore AA
Alternative:	Alt 2c Lorain to Tower City
Date:	3/5/2011

Input Data

1. System Operational Characteristics	
1a. Directional Route Miles	52.8
1b. Weekday Train Revenue Miles	
1c. Weekday Train Revenue Hours	
1d. Average Speed in MPH (if blank, computed from 1b and 1c)	35.2
1e. Trains per day per direction (if blank computed from 1a and 1b)	3.0
2. CTPP Flows	
2a. Home within 2 miles of any station and Work within 1 mile of any station	
2.a.i Employment <50,000 / square mile	12,477
2.a.ii Employment >50,000 / square mile	11,222
2b. Home within 6 miles of a PNR station and Work within 1 mile of any station	
2.b.i Employment <50,000 / square mile	21,091
2.b.li Employment >50,000 / square mile	18,376
3. Suburban-CBD Service flag	
3a. Code 1 if service is designed for connecting suburban areas to CBD otherwise, code 0	1.0

Parameters

1. Elasticity Base Speed	28.072
2. Demand elasticity with respect to speed	0.400
3. Normalization Factor on Speed Adjustment	0.978
4. Minimum Speed to Adjust	1.000
5. Maximum Speed to Adjust	1,000.000
6. Elasticity Base Average Trains/Day (per direction)	58.436
7. Demand elasticity with respect to Trains/Day	0.490
8. Normalization Factor of Trains/Day	0.826
9. Minimum Trains/Day to Adjustment	1.000
10. Maximum Trains/Day to Adjustment	1,000.000
11. Work Trip Train Frequency Adjustment for Infrequent Trains - Definition (Trains/Day)	52.000
12. Work Trip Train Frequency Adjustment for Infrequent Trains - Adjustment	0.550
13. Non-Work Trip Adjustment for Long Corridors - Dir. Rte Miles at mid-point of adj.	140.000
14. Non-Work Trip Adjustment of Long Corridors - Coefficient (slope) on adjustment	0.050
15. Non-Work Trip Adjustment of Long Corridors - Minimum adjustment	0.550
16. Adjustment for predominantly suburban/CBD service	0.680
17. Unlinked Walk/Bus/KNR Access to Work Trips/CTPP Flow - <50,000 / square mile	0.109
18. Unlinked Walk/Bus/KNR Access to Work Trips/CTPP Flow - >50,000 / square mile	0.149
19. Unlinked PNR Access to Work Trips/CTPP Flow - <50,000 / square mile	0.031
20. Unlinked PNR Access to Work Trips/CTPP Flow - >50,000 / square mile	0.128
21. Unlinked Walk/Bus/KNR Access to Non-Work Trips/CTPP Flow - <50,000 / square	0.205
22. Unlinked Walk/Bus/KNR Access to Non-Work Trips/CTPP Flow - >50,000 / square	0.158
23. Unlinked PNR Access to Non-Work Trips/CTPP Flow - <50,000 / square mile	0.017
24. Unlinked PNR Access to Non-Work Trips/CTPP Flow - >50,000 / square mile	0.036

Level-of-Service Service Factor

Average Speed (Item 1d if coded, otherwise 1b/1c)	35.20	
Minimum Normalized Speed Adjustment	0.2607	
Maximum Normalized Speed Adjustment	1.7954	
Computed Speed Adjustment		1.0901
Normalized Speed Adjustment		1.1144
Bounded Speed Adjustment		1.1144
Trains Per Day (Item 1e if coded, otherwise 1b/1a)	3.00	
Minimum Normalized Trains Per Day Adjustment	0.0641	
Maximum Normalized Trains per Day Adjustment	2.2657	
Adjustment for Trains Per Day		0.1157
Normalized Trains Per Day Adjustment		0.1401
Bounded Trains Per Day Adjustment		0.1401
Total Level-of-Service Factor		0.1561

Other Adjustments

Infrequent Trains per Day Max Elasticity	0.5500	
Work Trip Train Frequency Adjustment for Infrequent Service		2.3171
Non-Work Demand Adjustment for Long Corridors		0.5500
Adjustment for Non-CBD Trips for suburban-CBD-oriented Services		0.6800

Rail Unlinked Trips

Daily Work Walk/Bus/KNR Access unlinked trips to employment <50,000/sq mile	335
Daily Work Walk/Bus/KNR Access unlinked trips to employment >50,000/sq mile	605
Daily Work PNR Access unlinked trips to employment <50,000/sq mile	238
Daily Work PNR Access unlinked trips to employment >50,000/sq mile	854
Subtotal Work Daily unlinked trips	2,031
Daily Non-Work Walk/Bus/KNR Access unlinked trips to employment <50,000/sq mile	149
Daily Non-Work Walk/Bus/KNR Access unlinked trips to employment >50,000/sq mile	152
Daily Non-Work PNR Access unlinked trips to employment <50,000/sq mile	31
Daily Non-Work PNR Access unlinked trips to employment >50,000/sq mile	56
Subtotal Non-Work Daily unlinked trips	388
Total Daily unlinked trips	2,419

Table A9-5: Model Output for Alternative 3A

ARRF II v1 (Combined LRT/CR Model)

Project:	Westshore AA
Alternative:	Alt 3a Sandusky to West Blvd
Date:	3/4/2011

Input Data

1. System Operational Characteristics	
1a. Directional Route Miles	114.0
1b. Weekday Train Revenue Miles	
1c. Weekday Train Revenue Hours	
1d. Average Speed in MPH (if blank, computed from 1b and 1c)	27.4
1e. Trains per day per direction (if blank computed from 1a and 1b)	3.0
2. CTPP Flows	
2a. Home within 2 miles of any station and Work within 1 mile of any station	
2.a.i Employment <50,000 / square mile	8,191
2.a.ii Employment >50,000 / square mile	6,733
2b. Home within 6 miles of a PNR station and Work within 1 mile of any station	
2.b.i Employment <50,000 / square mile	13,251
2.b.li Employment >50,000 / square mile	11,091
3. Suburban-CBD Service flag	
3a. Code 1 if service is designed for connecting suburban areas to CBD otherwise, code 0	1.0

Parameters

1. Elasticity Base Speed	28.072
2. Demand elasticity with respect to speed	0.400
3. Normalization Factor on Speed Adjustment	0.978
4. Minimum Speed to Adjust	1.000
5. Maximum Speed to Adjust	1,000.000
6. Elasticity Base Average Trains/Day (per direction)	58.436
7. Demand elasticity with respect to Trains/Day	0.490
8. Normalization Factor of Trains/Day	0.826
9. Minimum Trains/Day to Adjustment	1.000
10. Maximum Trains/Day to Adjustment	1,000.000
11. Work Trip Train Frequency Adjustment for Infrequent Trains - Definition (Trains/Day)	52.000
12. Work Trip Train Frequency Adjustment for Infrequent Trains - Adjustment	0.550
13. Non-Work Trip Adjustment for Long Corridors - Dir. Rte Miles at mid-point of adj.	140.000
14. Non-Work Trip Adjustment of Long Corridors - Coefficient (slope) on adjustment	0.050
15. Non-Work Trip Adjustment of Long Corridors - Minimum adjustment	0.550
16. Adjustment for predominantly suburban/CBD service	0.680
17. Unlinked Walk/Bus/KNR Access to Work Trips/CTPP Flow - <50,000 / square mile	0.109
18. Unlinked Walk/Bus/KNR Access to Work Trips/CTPP Flow - >50,000 / square mile	0.149
19. Unlinked PNR Access to Work Trips/CTPP Flow - <50,000 / square mile	0.031
20. Unlinked PNR Access to Work Trips/CTPP Flow - >50,000 / square mile	0.128
21. Unlinked Walk/Bus/KNR Access to Non-Work Trips/CTPP Flow - <50,000 / square	0.205
22. Unlinked Walk/Bus/KNR Access to Non-Work Trips/CTPP Flow - >50,000 / square	0.158
23. Unlinked PNR Access to Non-Work Trips/CTPP Flow - <50,000 / square mile	0.017
24. Unlinked PNR Access to Non-Work Trips/CTPP Flow - >50,000 / square mile	0.036

Level-of-Service Service Factor

Average Speed (Item 1d if coded, otherwise 1b/1c)	27.40	
Minimum Normalized Speed Adjustment	0.2607	
Maximum Normalized Speed Adjustment	1.7954	
Computed Speed Adjustment		0.9903
Normalized Speed Adjustment		1.0123
Bounded Speed Adjustment		1.0123
Trains Per Day (Item 1e if coded, otherwise 1b/1a)	3.00	
Minimum Normalized Trains Per Day Adjustment	0.0641	
Maximum Normalized Trains per Day Adjustment	2.2657	
Adjustment for Trains Per Day		0.1157
Normalized Trains Per Day Adjustment		0.1401
Bounded Trains Per Day Adjustment		0.1401
Total Level-of-Service Factor		0.1418

Other Adjustments

Infrequent Trains per Day Max Elasticity	0.5500	
Work Trip Train Frequency Adjustment for Infrequent Service		2.3171
Non-Work Demand Adjustment for Long Corridors		0.5500
Adjustment for Non-CBD Trips for suburban-CBD-oriented Services		0.6800

Rail Unlinked Trips

Daily Work Walk/Bus/KNR Access unlinked trips to employment <50,000/sq mile	200
Daily Work Walk/Bus/KNR Access unlinked trips to employment >50,000/sq mile	330
Daily Work PNR Access unlinked trips to employment <50,000/sq mile	136
Daily Work PNR Access unlinked trips to employment >50,000/sq mile	468
Subtotal Work Daily unlinked trips	1,133
Daily Non-Work Walk/Bus/KNR Access unlinked trips to employment <50,000/sq mile	89
Daily Non-Work Walk/Bus/KNR Access unlinked trips to employment >50,000/sq mile	83
Daily Non-Work PNR Access unlinked trips to employment <50,000/sq mile	17
Daily Non-Work PNR Access unlinked trips to employment >50,000/sq mile	31
Subtotal Non-Work Daily unlinked trips	220
Total Daily unlinked trips	1,353

Table A9-6: Model Output for Alternative 3C

ARRF II v1 (Combined LRT/CR Model)

Project:	Westshore AA
Alternative:	Alt 3c Lorain to West Blvd
Date:	3/4/2011

Input Data

1. System Operational Characteristics	
1a. Directional Route Miles	44.6
1b. Weekday Train Revenue Miles	
1c. Weekday Train Revenue Hours	
1d. Average Speed in MPH (if blank, computed from 1b and 1c)	27.4
1e. Trains per day per direction (if blank computed from 1a and 1b)	3.0
2. CTPP Flows	
2a. Home within 2 miles of any station and Work within 1 mile of any station	
2.a.i Employment <50,000 / square mile	4,519
2.a.ii Employment >50,000 / square mile	6,733
2b. Home within 6 miles of a PNR station and Work within 1 mile of any station	
2.b.i Employment <50,000 / square mile	7,523
2.b.Ii Employment >50,000 / square mile	11,091
3. Suburban-CBD Service flag	
3a. Code 1 if service is designed for connecting suburban areas to CBD otherwise, code 0	1.0

Parameters

1. Elasticity Base Speed	28.072
2. Demand elasticity with respect to speed	0.400
3. Normalization Factor on Speed Adjustment	0.978
4. Minimum Speed to Adjust	1.000
5. Maximum Speed to Adjust	1,000.000
6. Elasticity Base Average Trains/Day (per direction)	58.436
7. Demand elasticity with respect to Trains/Day	0.490
8. Normalization Factor of Trains/Day	0.826
9. Minimum Trains/Day to Adjustment	1.000
10. Maximum Trains/Day to Adjustment	1,000.000
11. Work Trip Train Frequency Adjustment for Infrequent Trains - Definition (Trains/Day)	52.000
12. Work Trip Train Frequency Adjustment for Infrequent Trains - Adjustment	0.550
13. Non-Work Trip Adjustment for Long Corridors - Dir. Rte Miles at mid-point of adj.	140.000
14. Non-Work Trip Adjustment of Long Corridors - Coefficient (slope) on adjustment	0.050
15. Non-Work Trip Adjustment of Long Corridors - Minimum adjustment	0.550
16. Adjustment for predominantly suburban/CBD service	0.680
17. Unlinked Walk/Bus/KNR Access to Work Trips/CTPP Flow - <50,000 / square mile	0.109
18. Unlinked Walk/Bus/KNR Access to Work Trips/CTPP Flow - >50,000 / square mile	0.149
19. Unlinked PNR Access to Work Trips/CTPP Flow - <50,000 / square mile	0.031
20. Unlinked PNR Access to Work Trips/CTPP Flow - >50,000 / square mile	0.128
21. Unlinked Walk/Bus/KNR Access to Non-Work Trips/CTPP Flow - <50,000 / square	0.205
22. Unlinked Walk/Bus/KNR Access to Non-Work Trips/CTPP Flow - >50,000 / square	0.158
23. Unlinked PNR Access to Non-Work Trips/CTPP Flow - <50,000 / square mile	0.017
24. Unlinked PNR Access to Non-Work Trips/CTPP Flow - >50,000 / square mile	0.036

Level-of-Service Service Factor

Average Speed (Item 1d if coded, otherwise 1b/1c)	27.40	
Minimum Normalized Speed Adjustment	0.2607	
Maximum Normalized Speed Adjustment	1.7954	
Computed Speed Adjustment		0.9903
Normalized Speed Adjustment		1.0123
Bounded Speed Adjustment		1.0123
Trains Per Day (Item 1e if coded, otherwise 1b/1a)	3.00	
Minimum Normalized Trains Per Day Adjustment	0.0641	
Maximum Normalized Trains per Day Adjustment	2.2657	
Adjustment for Trains Per Day		0.1157
Normalized Trains Per Day Adjustment		0.1401
Bounded Trains Per Day Adjustment		0.1401
Total Level-of-Service Factor		0.1418

Other Adjustments

Infrequent Trains per Day Max Elasticity	0.5500	
Work Trip Train Frequency Adjustment for Infrequent Service		2.3171
Non-Work Demand Adjustment for Long Corridors		0.5500
Adjustment for Non-CBD Trips for suburban-CBD-oriented Services		0.6800

Rail Unlinked Trips

Daily Work Walk/Bus/KNR Access unlinked trips to employment <50,000/sq mile	110
Daily Work Walk/Bus/KNR Access unlinked trips to employment >50,000/sq mile	330
Daily Work PNR Access unlinked trips to employment <50,000/sq mile	77
Daily Work PNR Access unlinked trips to employment >50,000/sq mile	468
Subtotal Work Daily unlinked trips	985
Daily Non-Work Walk/Bus/KNR Access unlinked trips to employment <50,000/sq mile	49
Daily Non-Work Walk/Bus/KNR Access unlinked trips to employment >50,000/sq mile	83
Daily Non-Work PNR Access unlinked trips to employment <50,000/sq mile	10
Daily Non-Work PNR Access unlinked trips to employment >50,000/sq mile	31
Subtotal Non-Work Daily unlinked trips	173
Total Daily unlinked trips	1,158