

Red Line/HealthLine Extension Major Transportation Improvement Analysis

Purpose and Need



GREATER CLEVELAND REGIONAL TRANSIT AUTHORITY

RED LINE / HEALTHLINE EXTENSION MAJOR TRANSPORTATION IMPROVEMENT ANALYSIS

PURPOSE AND NEED

VERSION 1



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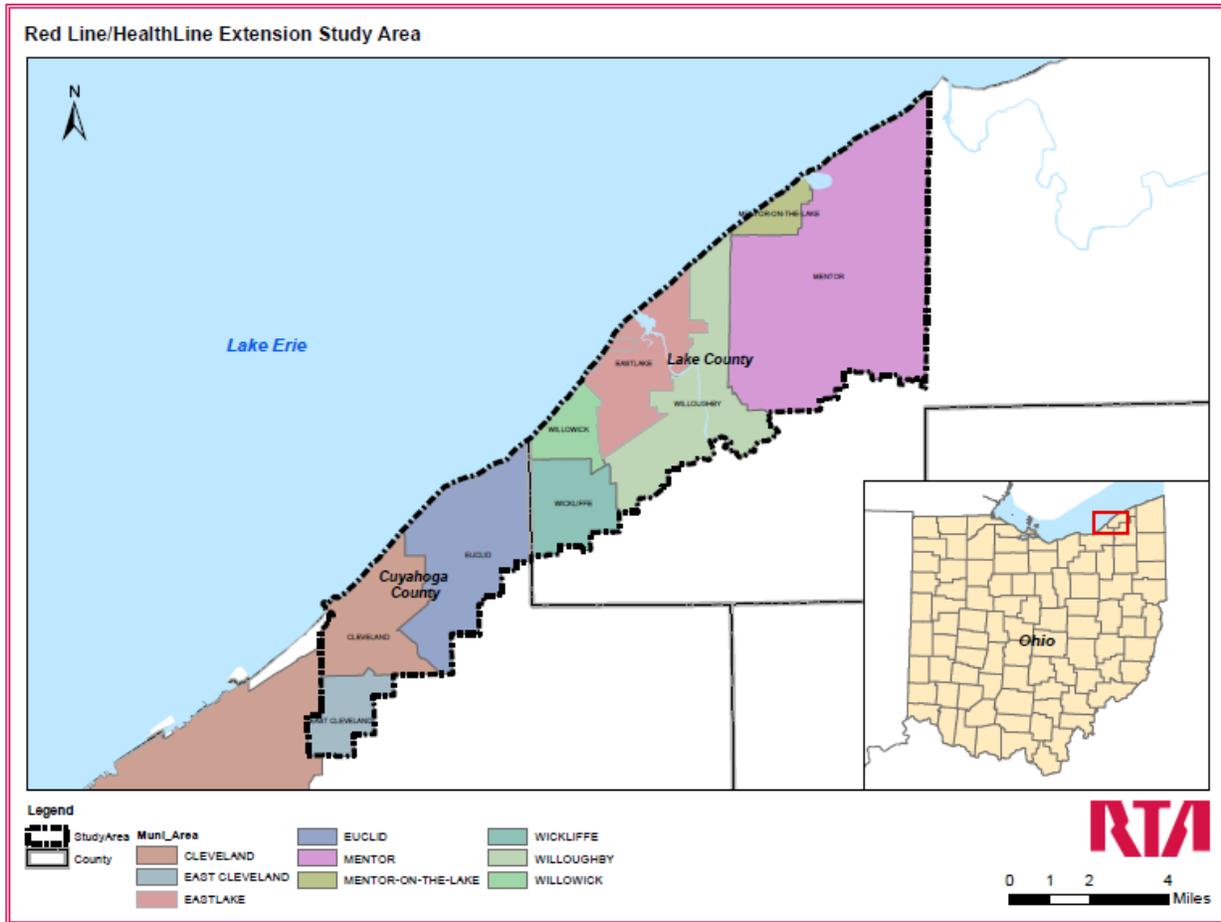
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Study Area Characteristics

The Red Line/HealthLine Extension Major Transportation Improvement Analysis study area is located in the northeastern section of the Cleveland metropolitan area. As shown in Figure 1, the study area comprises the Collinwood section of the City of Cleveland, the cities of East Cleveland and Euclid in Cuyahoga County, and the cities of Wickliffe, Willowick, Willoughby, Eastlake, Mentor and Mentor-on-the-Lake in Lake County. The Cuyahoga County section represents the core study area. Trip making and circulation data coupled with demographic trends, however, indicate a more cohesive interrelationship between communities on either side of the county line.

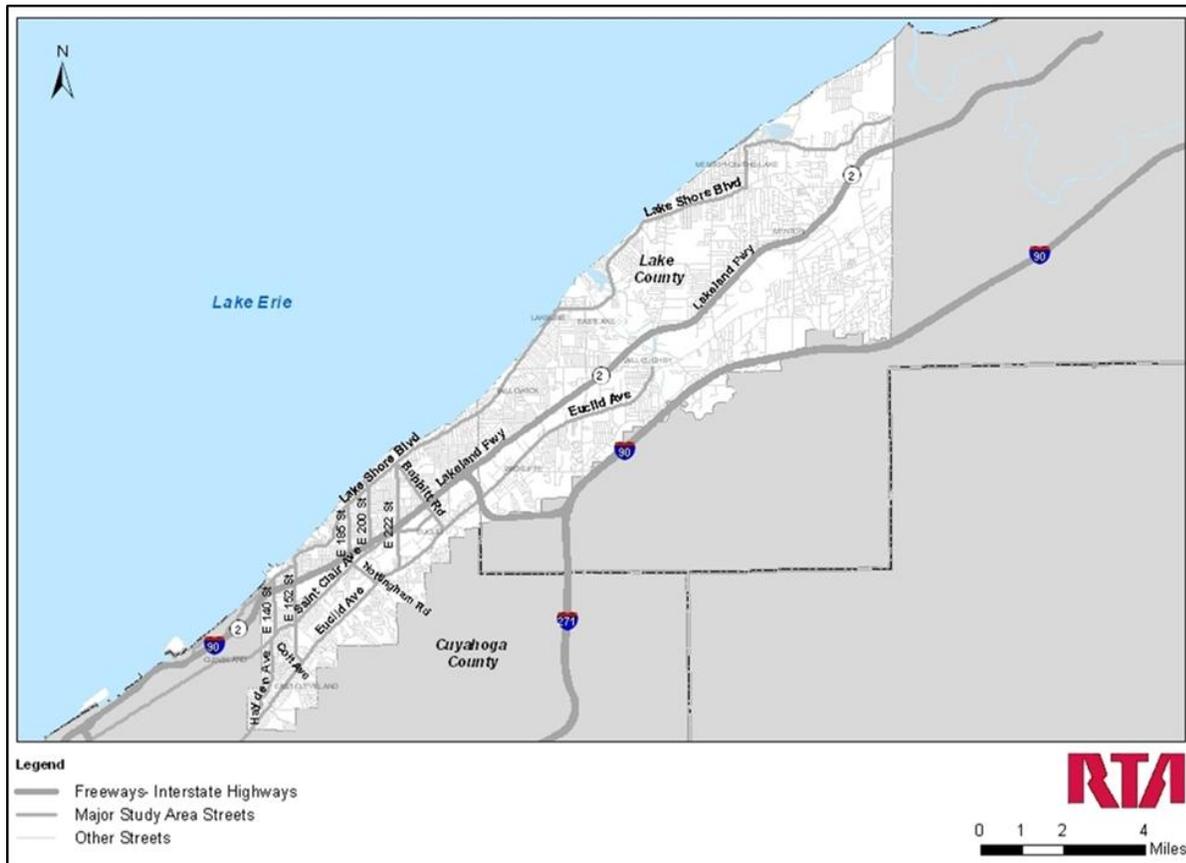
Figure 1: Study Area



Roadways and Railroads

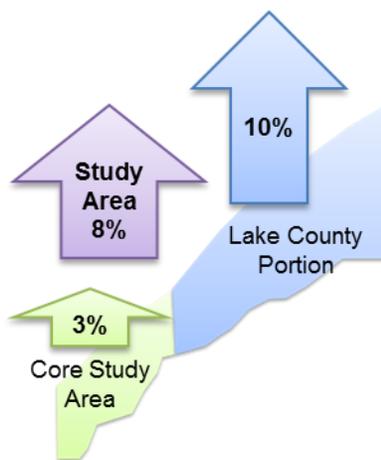
Primary roadways in the core study area shown in Figure 2 include Interstate 90 (I-90); parallel east-west arterials, Lakeshore Boulevard, St. Clair and Euclid Avenues; and north-south arterials, Hayden Avenue, E. 140, E. 152, E. 185, E. 200, and E. 222 Streets, and Babbitt Road. I-90 provides the sole limited-access roadway into downtown Cleveland from the study area and the northeast. St. Clair Avenue extends from downtown Cleveland to Babbitt Road in the City of Euclid. Lakeshore Boulevard provides a major link from E. 140 Street in the Collinwood area into Lake County. Euclid Avenue directly links the state’s major employment districts, downtown Cleveland and University Circle, to the study area and beyond into Lake County. The north-south arterials facilitate access to I-90 which serve as the primary conduit to outerbelt freeways and far-eastside employment.

Figure 2: Study Area Roadways



Migration of employment to the east and longer trips is evidenced by increases in vehicle miles traveled (VMT) and vehicle hours traveled (VHT). Based on the NOACA travel demand model, by 2035, study area VMT increases by

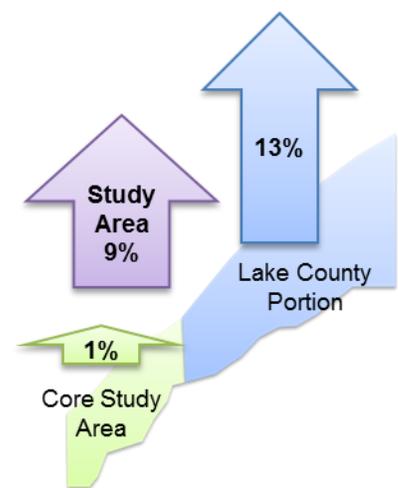
Figure 4: Vehicle Miles Traveled



8%; this includes 3% in the core study

area and 10% in the Lake County portion (Figure 4). Cuyahoga County as a whole displays modest VMT growth of 2% while Lake County and Geauga County total VMT increases 13% and 14%, respectively. Vehicle hours traveled (Figure 3) increases 9% for the study area; however, in the core study area the increase is 1%, whereas the increase in the Lake County portion is 13%. The greatest VHT increase occurs in the remainder of Lake County and Geauga County, 18% and 20%, respectively.

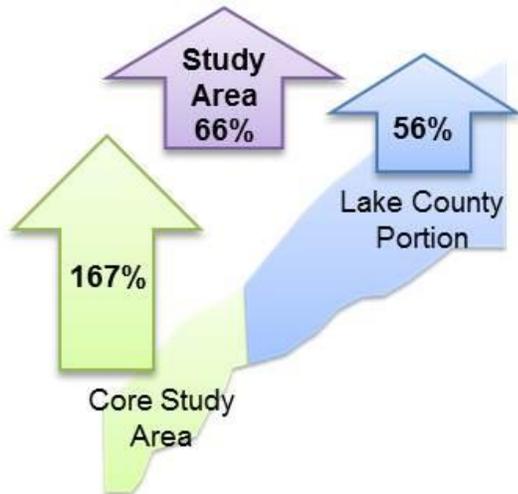
Figure 3: Vehicle Hours Traveled



With the growth in VMT, average speeds decrease and congestion delay increases. For the study area, delay under congested

conditions is projected to increase 66% overall, 167% in the core study area and 56% in the Lake County portion (Figure 5). It is notable that during the same period transit trips decrease for all areas. This indicates that the transit network will not adequately meet future travel needs.

Figure 5: Delay



Most study area roadways in 2010 exhibited volume to capacity (v/c) ratios less than 0.6, indicating relatively uncongested conditions. By 2035, eastern I-90 and several key arterials in Euclid and Lake County will be congested and have v/c ratios at or above 0.8. During the same period several arterials in the core study area will experience low to moderate decreases in traffic volumes. University Circle, immediately adjacent to and west of the study area, will experience a significant increase in delay along local area roadways and moderate to severe congestion on roadways leading to the area from freeways due to projected population and employment increases in this growing hub. This increase in congestion is attributable to the eastward migration of population and employment to generally unchanged level of roadway capacity and transit access.

The CSX and Norfolk Southern (NS) railroad tracks traverse the study area east to west. Being grade separated and flanked by industrial and commercial uses, these railroad corridors effectively establish clear demarcation of neighborhoods and catchment areas, particularly in the core study area. I-90 and Lake Shore Boulevard are north of CSX, St. Clair Avenue is between CSX and NS, and Euclid Avenue is south of NS. Benefits that may accrue from corridor improvements along east-west arterials would be primarily linear as north-south access is limited to arterials that cross railroads.

Land Use and Activity Centers

The study area is characterized by a significant share of industrial land uses which are visibly organized around the axis of transportation corridors that traverses the middle of the study area, I-90, St. Clair Avenue, the CSX and NS railroads, and Euclid Avenue. Residential land uses predominate along the lake shore in all communities and south of the NS Railroad along the Euclid corridor. The areas north and south of the industrial corridor also contain significant pockets of commercial land tax-exempt public and institutional property, such as government buildings, schools, parkland and cemeteries.

Industrial land is a major if declining source of employment and represents 13% of the land in the Cuyahoga communities and 10% of the land in the Lake communities. In absolute terms, however, there is two and one-half times as much industrial land in the Lake County portion of the study area as in the Cuyahoga portion. Mentor alone, with nearly 1,900 industrial acres, has more industrial land than the three Cuyahoga communities combined. While several large employers are located in the study area, employment migration to the east is the trend and Mentor and eastern Lake County are key growth areas.

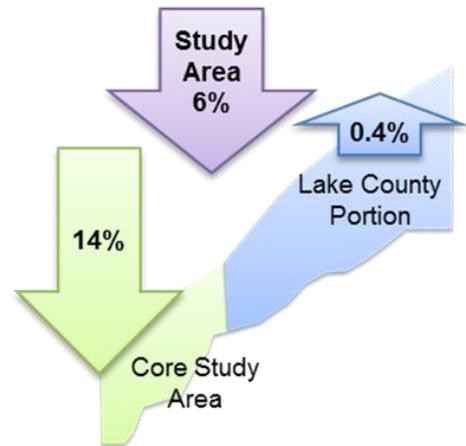
As a result of the continuing shift in employment to the east, many industrial sites and other parcels in the core study area are vacant or underutilized and hence no longer produce tax revenue. This issue is most pronounced in East Cleveland where in addition to underutilized industrial site, 30% of the land is tax-exempt. Further, the reduction in employment and the projected population decline in the study area equates to fewer transit trips.

Downtown Cleveland and University Circle are the largest business districts in the state. Future employment projections indicate that by 2035 downtown Cleveland will experience a decrease while employment in University Circle will increase. Lake and Geauga Counties will continue to gain employment and experience a significant increase during the same period. Much of the suburban employment occurs in dispersed locations that are difficult to serve by transit. This results in greater dependence on vehicle and the concomitant increase in vehicle miles, vehicle hours and delay.

Population

In 2010, the study area population was approximately 223,000, an 11% decrease from the 2000 population of nearly 250,000. The decline in the Cuyahoga County portion was 17%, compared to 5% in the Lake County portion. The core study area and Cuyahoga County has reflected a long-term loss in population which is expected to continue into the future. The NOACA travel demand model projects by 2035 study area population will decrease by 6% overall; the Cuyahoga County portion of the study area will decrease by 14%; however, the Lake County portion will remain relatively stable with a 0.4% increase (Figure 6). Taking a broader view of adjacent areas, population will decrease 9% in eastern Cuyahoga County¹, 1% in Lake County south of the study area, and 3% in eastern Lake County. Geauga County is projected to gain 12% in population. These trends underscore the continuing out migration of residents from Cleveland, Cuyahoga County and Lake County.

Figure 6: 2010 – 2035 Population Change



Households

From the historical perspective Cuyahoga County and the core study area have been well served by transit and, not surprisingly, include a higher share of zero-vehicle households. This characteristic relates to the availability of transit at origins and destination, household income, and housing cost.

Zero-vehicle households are a powerful predictor of transit use, as they are almost six times as likely to use transit. The number of zero-vehicle households in 2010 varied between 13% and 24% in the core study area. The share of zero-vehicle households decreases significantly at the county line as does the level and convenience of transit service available. Lake County vehicle ownership rates range between 96% and 98%. The share of persons employed does not vary significantly between the Cuyahoga and Lake County portions of the study area. Therefore, the need for convenient transit service for zero-vehicle households cannot be understated. But, transit must be available not only at the origin, but also to the destination. The ongoing trend of employment migration to areas with little or no transit will impact transit dependents and likely result in fewer work-related transit trips.

Labor Force

The number and residential location of employed persons, employment locations, type of employment, and available transportation options affects commuting patterns and development of future transportation options. In 2011, approximately 87,200 jobs were located in the study area and approximately 99,800 people who lived in the study area were employed or active in the labor force. Of those 99,800 residents who were employed, about 31,700 worked in the study area and 68,000 worked outside the study area. Of the 87,200 jobs in the study area, 55,400 were held by employees living outside of the study area and commuting in. Therefore, a net outflow of 12,600 people commutes from the study area to work. Between 2010 and 2035, study area employment is projected to increase significantly in Lake County, but decreases in Cuyahoga County. Many trips are projected to be made by vehicles and, correspondingly, congestion increases and transit ridership falls.

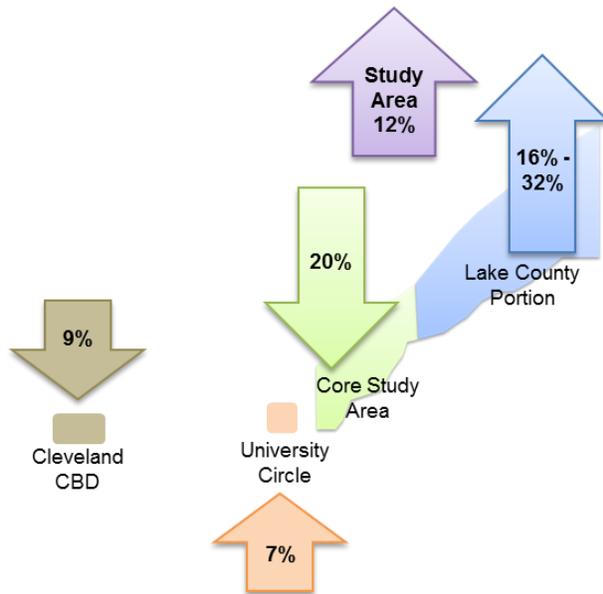
Employment

Between 2002 and 2011, employment in the study area decreased 10%. The decline in Cuyahoga County portion was 22%, compared to 4% in the Lake County portion. However, within the Lake County portion, Mentor-on-the-Lake displayed a 29% increase, indicating a future trend in employment growth to the east. Future projections for employment display a varied pattern. Figure 7 shows study and key business district employment change. By 2035, overall, study area employment is projected to grow by almost 12%. This is attributable to employment growth of 16% to 32% in the Lake County cities of the study area. The core study area is projected to realize a 20% decrease in employment. Lake County outside the study area and Geauga County are projected to experience increases of

¹ For transportation planning analysis purposes, the traffic analysis zones (TAZs) used in the NOACA regional model were aggregated into larger geographic areas called districts; East Cuyahoga County is one of the 13 traffic analysis districts within the study area. The East Cuyahoga County district comprises areas east of the Cuyahoga River, other than the downtown Cleveland, University Circle, and Cleveland Clinic districts and the study area.

29% to 52%, a further indication of eastward employment migration. The region's largest business district, downtown Cleveland, will realize a 9% decrease whereas a gain of 7% is projected for University Circle, the second largest business district. Outward employment and population migration into areas with limited or no transit service leads to essentially total dependence on private vehicles for all trips; related effects are increased VMT, VHT, and traffic-related delay.

Figure 7: 2010 – 2035 Employment Change



For study area residents who were in the labor force, the largest employer industry was Health Care and Social Assistance (20%), reflecting the region-scale concentration of such jobs in and around University Circle, served by both the Red Line and the HealthLine. The next highest industry was Manufacturing (14%), reflecting the still significant industrial corridor traversing the study area along roadways and railroads.

Propensity for Transit

The trend in out migration has resulted in a change of transit propensity, or the likelihood for transit use based on demographics and location. Transit propensity is best indicated by the share of households without a vehicle available and by market density which reflects the distribution of population, employed residents, and jobs. Locations or corridors that are dense in residents, employees, or workplace destinations are potential transit markets, and mixed-use places that are dense in both people *and* jobs are prime transit markets. Population and employed residents are most dense along the lake shore throughout the study area,

whereas employment is concentrated in areas adjacent to the railroads and I-90, particularly in Lake County. Again, the out migration trend for employment is evident in that much is located in Lake County, but generally in areas with little or no transit access. High transit propensity markets include East Cleveland, Collinwood, Euclid, and most of Willowick. And, within these areas the highest propensity can be noted for East Cleveland from the Cleveland boundary to Windermere, in Collinwood and Euclid along Lakeshore Boulevard between E. 152 and E. 222, and Euclid Avenue between E. 200 and E. 222. Most of Eastlake, Willoughby, and Mentor-on-the-Lake fall generally toward the lower end of transit propensity with Wickliffe in between. While Mentor is generally an area of low transit propensity, it is an important destination for work trips.

Transit

The Greater Cleveland Regional Transit Authority (RTA) provides local and commuter bus, Red Line heavy rail, and the HealthLine bus rapid transit service to the core of the study area. Laketran operates local bus service in Lake County as well as express bus service through Cuyahoga County to downtown Cleveland. Three interface points near the county line allow transfers between the two systems. Service discontinuity at the county line does not reflect the increasing need for through, seamless service for work and other trips into and from the core study area. Community characteristics are becoming increasingly similar between the core study area and western Lake County. Correspondingly, coordinated services across the county line would better fit local area community trips as well as work trips to major employment centers.

RTA high capacity transit routes, the Red Line and HealthLine, provide direct access to the region's largest business districts, downtown Cleveland and University Circle. However, both terminate at Windermere, close to the western boundary of the study area in East Cleveland and distant from convenient transit connections to employment growth areas in Lake County. Laketran provides service to downtown Cleveland, but not to Windermere or University Circle. Lake County commuters destined to University Circle or the Cleveland Clinic have neither a one-seat ride option nor a direct and convenient connection. Clearly, the current transit network does not provide a reasonable option to effectively support trips into the study area and to adjacent employment at University Circle, or trips from the study

area to employment that has moved farther east. Extension of high capacity transit to the east would improve connectivity for study area and other trips, thereby encouraging tripmaking and reinforcing corridor development potential.

Future transit service levels in the study area are not expected to change significantly in the future. Figure 8 shows a general projected decrease in ridership to 2035. Red Line and HealthLine passengers are anticipated to decrease by 12% and 16% respectively. Laketrans express bus services into downtown Cleveland will decrease an average of 30%. RTA local bus routes are forecast to experience decreases of 21% to 27%. Collectively, Laketrans local Routes 2, 3, and 6 are projected to grow by 11%. Population and employment changes, without a corresponding modification of transit service and coverage will result in fewer transit riders.

Figure 8: 2010 – 2035 Average Change in Transit Ridership

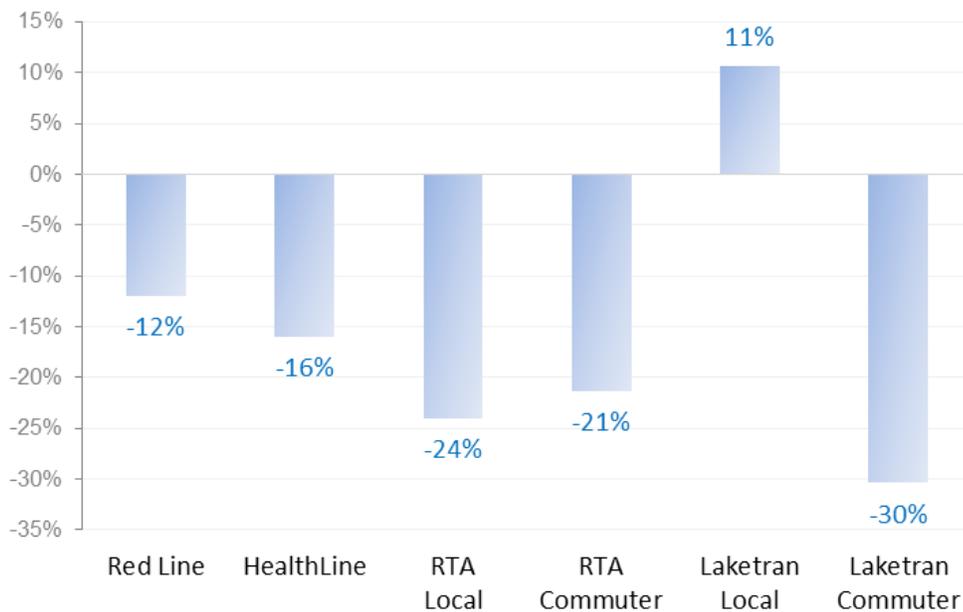
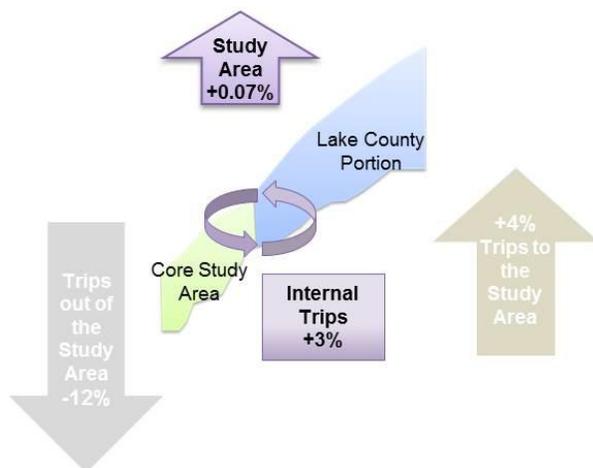


Figure 9: 2010 – 2035 Person Trips



Trips and Trip Making

Future trip making characteristics also reflect the out migration trend. Despite an expected 6% decrease in population within the study area, a modest growth on 0.07% in study area person trips is projected. Figure 9 shows that between 2010 and 2035 person trips entirely within the study area increase 3% and trips destined to the study area increase by 4%. However, trips that originate in the study area destined to other areas decrease by 12%.

Trips from the study area to the key business districts, downtown Cleveland and University Circle decrease by 27% and 14%, respectively. Trips to western Lake County decrease slightly; however, trips increase by 33% to eastern Lake County.

Home-based work (HBW) trips are a key driver of transit and peak hour commuting. During the same period, HBW trips showed a modest decrease of 1% for the study area. HBW trips entirely within the study area increased 6% and trips to the study area increased 4%. However, work trips from the study area to external employment decreased 13%.

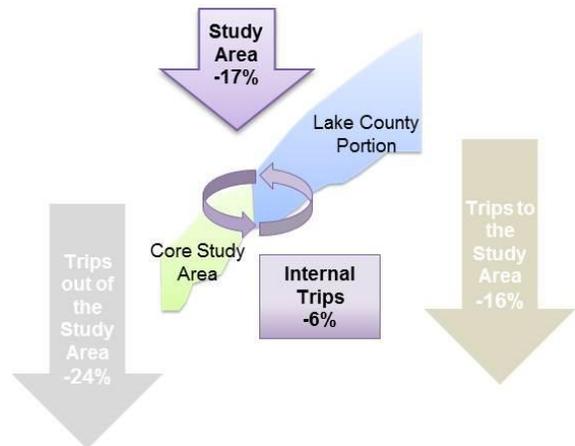
HBW trips from the study area to downtown Cleveland and University Circle are projected to decrease by 33% and 19%, respectively. From the core study area, downtown HBW trips decrease by 24% and University Circle trips by 12%. The change is more pronounced for the Lake County portion of the study area which displays decreases of 47% to downtown and 34% to University Circle. .

Despite the modest increase in study area person and HBW trips, transit ridership decreases during the same period. This is a result of future shifts in population and employment centers. The current transit route network will not adequately serve the future distribution of population and employment and trip making patterns.

In 2035, HBW transit trips account for 59% of all transit trips. Compared to 2010, HBW transit trips decrease by 20%. HBW transit trips that occur entirely within the study area decrease 5% and trips from the study area to external destination decrease 25%. Also, trips into the study area decrease by 17%.

Overall, total study area transit trips decrease 17%. Figure 10 shows transit trips entirely within the study area decrease 6%; however, trips that originate in the study area decrease by 24%. External trips, those that originate outside, but are destined to the study area decrease by 16%. Transit routes extend from the study area into Cuyahoga County and are impacted by projected decreases in county population and employment. The decrease in transit ridership is attributable to lower population and employment which results in fewer person trips. The core study area is projected to sustain some of the largest decreases in population and employment; this is reflected in the 17% decrease in transit trips.

Figure 10: 2010 – 2035 Change in Total Transit Trips



Purpose

The purpose of this study is to determine the scope, scale and type of transit investment to best meet mobility needs, complement and enhance the transportation network infrastructure, and support land use and community plans.

- **Mobility Need** – Enhancing transportation options, service, and connections for study area residents to current and emerging transportation markets.
- **Transportation Network** – Refining the transportation network to meet new markets, enhance and maintain current markets, and develop cost effective alternatives to driving alone in cars.
- **Land Use and Community** – Developing alternatives that support community development and economic goals and ensure effective transit to populations with high transit propensity.
- **Sustainability, Public Health and Environmental Stewardship** – Providing sustainable transit facilities and amenities that promote walking and bicycle use; encouraging transit as a healthy and environmentally-friendly, sustainable commuting choice; and supporting sustainable design and green principles for implementation and operation of transit facilities.

Need

Baseline conditions and analysis of current and projected market conditions provide a comprehensive snapshot of past and future trends; the need for transit and transportation-related improvements flows directly from these findings.

- **Reverse Employment and Population Migration Trends.** The trend in population and employment migration to the east is undisputed. Transit must innovatively address this trend to ensure convenient, attractive, and time-competitive access between communities, employment and activity centers.
 - Serve existing and emerging employment and activity centers
 - Serve underserved or unserved employment and activity centers
 - Serve zero-vehicle households and transit dependent communities
 - Serve high transit propensity areas

Further, transit service must be structured to meet travel needs of current markets and existing customers

- Meet travel needs and markets by trip type
 - Maintain markets to current key activity centers
- **Improve Service Delivery Optimization.** Refine network structure and operating plans and derive service strategies to meet long term needs efficiently.
 - Develop effective and efficient high capacity transit
 - Define corridors by service type and mode – local, express, high capacity
 - Define improvements that can be implemented incrementally
 - Ensure long-term viability
 - Ensure travel time reliability with infrastructure improvements
 - Improve transit productivity and metrics
 - Internal trips and external trips by provider
 - **Enhance Transit Connections and Integration.** RTA and Laketrans provide service to what has become a cohesive community with travel needs that span the county line. Improved integration of service between the Cuyahoga and Lake County portions of the study area for work and non-work trips is essential.
 - Develop seamless interfaces and coordinated intercounty services
 - Provide direct convenient connections to activity centers for local and commuter trips
 - Promote multi-modal integration – transit, shuttles, bicycles, alternative transportation modes
 - **Support Sustainable Land Use and Economic Development.** Develop transit to enhance and support land use and development plans and use and redevelopment plans
 - Promote sustainable economic development
 - Support redevelopment and reuse of land in transit corridors
 - Serve affordable housing
 - Utilize existing infrastructure
 - Coordinate transit investment with land use policies
 - Protect the environment and minimize environmental impacts

Goals and Objectives

Based on the review of regional goals and objectives identified in previous studies and plans and federal project justification and livability guidelines (see Appendix A: Regional Goals and Objectives, Project Justification and Livability Principles), the following goals and objectives are proposed for the study.

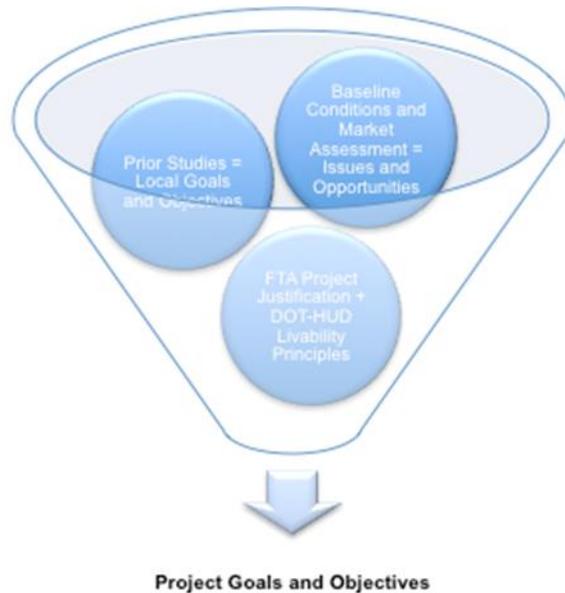
Goals	Objectives	Corresponds to
1. Improve mobility for Cleveland residents, employees, customers and visitors.	<ul style="list-style-type: none"> ▪ Provide more transportation choices, especially for transit dependent groups, such as low-income and minority populations, and the aged to jobs, housing and other trip purposes. ▪ Provide high-quality bus and rapid transit service for local trips between new employment in the eastern suburbs and the core study area, as well as for access to key core destinations, including University Circle and downtown Cleveland. ▪ Increase transit ridership and mode share for all communities. ▪ Establish a more balanced transportation system which enhances modal choices and encourages walking, bicycle and transit use. 	<ul style="list-style-type: none"> ▪ FTA's <i>Mobility Improvements</i> Justification Criteria ▪ DOT-HUD's Livability Principles - <i>Provide more transportation choices; Value communities and neighborhoods.</i>
2. Contribute to and serve as a catalyst for economic development.	<ul style="list-style-type: none"> ▪ Encourage transit-oriented mixed-use development along the corridor that would support population and employment growth along the corridor. ▪ Reinvest in the local economy by maximizing the economic impact of transportation investments as related to land use redevelopment, infrastructure improvements, and housing. ▪ Support regional economic development initiatives. ▪ Incorporate considerations into new development design that support transit as a transportation option. 	<ul style="list-style-type: none"> ▪ FTA's <i>Economic Development and Land Use</i> Justification Criteria ▪ DOT-HUD's Livability Principles - <i>Enhance economic competitiveness; Support existing communities.</i>
3. Enhance livability, reuse and long-term environmental benefit.	<ul style="list-style-type: none"> ▪ Minimize adverse air, land and water environmental impacts of transportation investments. ▪ Conserve transportation energy. ▪ Serve households at a range of income levels. ▪ Support lifestyle choices for environmentally sustainable communities. ▪ Implement strategies for reducing transportation-related greenhouse gas emissions. ▪ Promote green and sustainable technologies and solutions that enhance economic development opportunities. 	<ul style="list-style-type: none"> ▪ FTA's <i>Environmental Benefits, Economic Development and Land Use</i> Justification Criteria ▪ DOT-HUD's Livability Principles - <i>Value communities and neighborhoods; Promote equitable, affordable housing; Enhance economic competitiveness; Support existing communities.</i>
4. Improve the image and identity of the residential, commercial, and industrial areas through infrastructure improvements.	<ul style="list-style-type: none"> ▪ Support private investments in transit friendly, and pedestrian and bicycle-focused developments. ▪ Support improvements in neighborhood connectivity through attention to safety, comfort and aesthetics in the design of transportation infrastructure. ▪ Serve areas of and complement initiatives for affordable housing. 	<ul style="list-style-type: none"> ▪ FTA's <i>Environmental Benefits, Economic Development and Land Use</i> Justification Criteria ▪ DOT-HUD's Livability Principles - <i>Value communities and neighborhoods; Enhance economic competitiveness; Support existing communities.</i>

Appendix A

Regional Goals and Objectives, Project Justification and Livability Principles

Introduction

The goals and objectives of the Red Line/HealthLine Extension emerged from a thorough review of regional goals and objectives identified in previous studies and plans; FTA's project justification requirements under MAP-21 for



Small/New Starts Projects; and DOT-HUD EPA Livability Principles. Figure A-1 shows the steps in the process used to develop the project goals and objective. The following sections summarize the process and the findings from each of the steps.

Figure A-1: Process - Developing Project Goals and Objectives

Key Issues and Opportunities

The Baseline Conditions and the Market Assessment completed separately as a part of this study helped identify the key issues and opportunities in the study area, which are listed below:

- The depopulation of the core study area in recent years has been a major concern. The Northeast Ohio Areawide Coordinating Agency (NOACA) published Connections 2035 states that the “reduced density of populations and employers within the region may also result in difficulty maintaining existing services and in creating new services.” This has led to the depreciation in land values, which in turn makes land available for development/redevelopment at a relatively lower cost.
- Reduced volumes on some streets due to out-migration provide the opportunity for exclusive transit lanes, which would improve reliability and reinforce the objective of improved mobility.

- The success of the HealthLine BRT provides the opportunity to build upon its previous successes for extension through the study area.
- Since the HealthLine BRT opened in 2008, over \$4.3 billion has been invested in rehabilitating old buildings into housing and retail centers, as well as major expansions to nearby universities, museums and hospitals – helping to lure more business into the area and spur economic growth. Extending the HealthLine BRT could help continue the trend for economic development and community investments, and improve neighborhood attractiveness.
- Approximately 60% of the core study area residents work outside the core, often in suburban areas to the east that are not currently well connected by transit. Extending the Red Line/HealthLine would provide a reliable and attractive transit service to these residents, many of whom are minority, low-income populations, or transit dependent.
- The Red Line/HealthLine extension would improve coordination between RTA and Laketran routes – this promotes study area integration and expands the housing market to transit-dependent populations.

Data Collection and Prior Studies

The goals and objectives of the Red Line/HealthLine Extension must be consistent with the goals and objectives of the following local plans:

- 2010-2020 RTA Strategic Plan, 2012
- City of Cleveland Climate Action Plan, 2013 (draft)
- Downtown Euclid Transportation and Redevelopment Plan, 2007
- Euclid Waterfront Improvements Plan, 2009
- East Cleveland Master Plan, 2003
- Connecting Cleveland 2020 Citywide Plan
- Connections 2035, Northeast Ohio Areawide Coordinating Agency (NOACA), 2013
- Cuyahoga County Economic Development Plan, 2011
- St. Clair Avenue Revitalization, 2003

The goals and objectives of these plans were broadly classified into the categories that generally correspond to the FTA Project Justification Criteria and DOT-HUD EPA Livability Principles, and are shown in Table A-1.

Table A-1: Goals and Objectives outlined in Local Plans

Plan	Goals	Objectives
MOBILITY		
2010-2020 RTA Strategic Plan, 2012	<ul style="list-style-type: none"> ▪ Be the preferred form of transportation in the Cleveland area. ▪ Improve services to suburban employment centers. ▪ Provide special transportation service support to those who need it most. ▪ Provide services at a sustainable level given its financial resources. 	<ul style="list-style-type: none"> ▪ Function as a vital part of a balanced transportation system, one that achieves an optimal mix of automotive, transit and non-motorized transportation types. ▪ Connect workers to jobs in the many large and growing suburban employment areas of the region. ▪ Provide high quality transit services to provide mobility and dignity to all the citizens of its service area. ▪ Prevent future major service reductions.
City of Cleveland Climate Action Plan, 2013 (draft)	<ul style="list-style-type: none"> ▪ Reduce congestion and vehicle emissions. ▪ Create complete and green streets. 	<ul style="list-style-type: none"> ▪ Develop and promote policies and programs that encourage more efficient vehicles. ▪ Increase the use of public transit through incentives and system improvements. ▪ Make biking and walking safer and easier.
Downtown Euclid Transportation and Redevelopment Plan, 2007	<ul style="list-style-type: none"> ▪ Establish more meaningful and cohesive connections to its surroundings. ▪ Invest in transportation and infrastructure improvements. 	<ul style="list-style-type: none"> ▪ Make transportation and infrastructure improvements that will make Downtown Euclid a more “livable” place.
Euclid Waterfront Improvements Plan, 2009		<ul style="list-style-type: none"> ▪ Add a new primary access point aligned with East 228th Street to provide direct, safe and simple access.
East Cleveland Master Plan, 2003	<ul style="list-style-type: none"> ▪ Strengthen Employment and Economic Development Opportunities. 	<ul style="list-style-type: none"> ▪ Ensure that residents and employees have an effective public transit system to serve their needs. ▪ Maximize opportunities for linkages with employers and institutions in East Cleveland and surrounding areas, such as University Circle.

Plan	Goals	Objectives
Connecting Cleveland 2020 Citywide Plan	<ul style="list-style-type: none"> ▪ Provide a variety of transportation options that serve residents of all income levels and that promote economic development while protecting the quality of life in neighborhoods. 	<ul style="list-style-type: none"> ▪ Support improved bus and rapid transit service, through public funding and employer incentives, to serve individuals who require or prefer mass transit and to reduce the pollution and roadway congestion caused by use of personal automobiles. ▪ Continue and expand RTA's "Community Circulator" program, providing convenient bus service to residents using mass transit to reach such neighborhood destinations as shopping, recreation and medical services. ▪ Provide transit service between central city neighborhoods and employment concentrations in the city and in outlying areas.
Connections 2035, Northeast Ohio Areawide Coordinating Agency (NOACA), 2013	<ul style="list-style-type: none"> ▪ Preserve and improve the efficiency and safety of the existing transportation system, prioritize elements of the system identified as significant and ensure the system serves homeland security. ▪ Establish a more balanced transportation system which enhances modal choices by prioritizing goods movement, transit, pedestrian and bicycle travel instead of just single occupancy vehicle movement and highways. ▪ Improve the transportation mobility of the transit-dependent and low-income individuals to jobs, housing and other trip purposes. ▪ Provide additional transportation system capacity to move people and goods only when such capacity improvements promote the NOACA Principles, minimizing the adverse impacts of the investments on existing communities within the region. 	<ul style="list-style-type: none"> ▪ Foster reinvestment in existing urban core areas throughout the region, and work to target and manage transportation investments to implement Plan goals. ▪ Improve access to multiple modes by developing a balanced transportation system; people have the opportunity to choose between a number of travel options to their destinations. ▪ Improve the efficiency of the highway system by employing strategies that do not add lanes to the system can also save significant public money.
Cuyahoga County Economic Development Plan, 2011	<ul style="list-style-type: none"> ▪ Prioritize transportation and connectivity within and outside the County. 	<ul style="list-style-type: none"> ▪ Infrastructure – the roads, rails, seaports, broadband, and airports that move people to jobs and goods to markets efficiently- will drive the next economy. ▪ Provide efficient and affordable connections between where people live and education and employment opportunities. ▪ Provide public and alternative transportation within region (e.g. bike paths, light rail).

Plan	Goals	Objectives
Environmental Assessment Report Prospect And East 21st Street Intermodal Center East Side Transit Center, 2005	<ul style="list-style-type: none"> ▪ Improve Service to GCRTA Customers by Increasing Transit System Efficiency. 	<ul style="list-style-type: none"> ▪ Provide localized and convenient access to buses that can travel to and access major activity centers, employment centers, and population centers.
ECONOMIC DEVELOPMENT		
2010-2020 RTA Strategic Plan, 2012	<ul style="list-style-type: none"> ▪ Focus on ensuring access to employment and educational opportunities for residents throughout the region. ▪ Continue to play a vital role in maintaining and building the region's competitiveness. 	<ul style="list-style-type: none"> ▪ RTA's capital investment and service allocation decisions will be made in light of the need to promote employment and workforce development in Northeastern Ohio. ▪ RTA will provide mobility in the face of rising fuel prices to reduce dependence on foreign oil, and emissions that may be contributing to global climate change.
Downtown Euclid Transportation and Redevelopment Plan, 2007	<ul style="list-style-type: none"> ▪ Guide and maximize the area's growth. 	<ul style="list-style-type: none"> ▪ Ensure that both the public and private realms work together to create an engaging and memorable downtown.
Euclid Waterfront Improvements Plan, 2009	<ul style="list-style-type: none"> ▪ Stimulate Economic Investment 	<ul style="list-style-type: none"> ▪ Link Downtown Euclid to the waterfront.
East Cleveland Master Plan, 2003	<ul style="list-style-type: none"> ▪ Strengthen Employment and Economic Development Opportunities. ▪ Develop and Strengthen Community-Based Partnerships. ▪ Enhance Management of City Government. 	<ul style="list-style-type: none"> ▪ Revitalize and expand the light industrial base of the city by retaining current businesses and attracting additional businesses to East Cleveland. ▪ Encourage economic development strategies that: <ol style="list-style-type: none"> 1) Create decent paying jobs for residents; 2) Expand the tax base of the city; and 3) Enhance focal points of activity for commercial and industrial businesses. ▪ Improve and maintain the accessibility and infrastructure of the community for manufacturers, merchants, employees, and residents. ▪ Identify educational and job training opportunities to meet the needs of residents and the business community. ▪ Develop working relationships with surrounding communities and county departments to maximize coordination for projects that have common impacts.

Plan	Goals	Objectives
Connecting Cleveland 2020 Citywide Plan	<ul style="list-style-type: none"> ▪ Provide Cleveland residents with a broad range of high quality, conveniently located retail shopping opportunities. ▪ Increase economic prosperity through job creation and improved access to jobs and business ownership by all segments of the Cleveland community. 	<ul style="list-style-type: none"> ▪ Address homelessness through a multi-faceted strategy that includes emergency shelters, permanent supportive housing, medical and social services, and job training. ▪ Improve access to job training opportunities that enable Cleveland residents to more fully participate in growing sectors of the economy. ▪ Utilize schools as centers for community education, open in the evenings and weekends for use by students as well as other neighborhood residents, as financial resources permit.
Connections 2035, Northeast Ohio Areawide Coordinating Agency (NOACA), 2013	<ul style="list-style-type: none"> ▪ Advance the region's economic competitiveness based upon a sustainable development approach integrating environmental, social equity and economic perspectives. 	<ul style="list-style-type: none"> ▪ Retail proposals should consider the transportation improvements necessary to accommodate full use of the proposed facility as part their upfront analyses. ▪ Understanding how the diverse regional economy competes at the state, national and international level is vital in developing future sustainable economic development strategies within the NOACA region. ▪ Incorporate transit considerations into new development design to aid in preserving the vitality of transit as a transportation option.
Cuyahoga County Economic Development Plan, 2011	<ul style="list-style-type: none"> ▪ Prepare residents for the jobs and careers of today and tomorrow. ▪ 	<ul style="list-style-type: none"> ▪ Accelerate business growth by connecting existing and new companies to regional resources that will help them invent, commercialize, make and sell new products to growing global markets
Environmental Assessment Report Prospect And East 21st Street Intermodal Center East Side Transit Center, 2005	<ul style="list-style-type: none"> ▪ Promote Concurrent Long-term Economic and Community Development and Growth near the East Side Transit Center. 	<ul style="list-style-type: none"> ▪ Provide the catalyst for additional development opportunities for higher density and mixed-use development in the area which, in turn, would contribute to ridership and increase system efficiency.
SUSTAINABILITY		
2010-2020 RTA Strategic Plan, 2012	<ul style="list-style-type: none"> ▪ Increase the network's contribution to sustaining our natural environment. 	<ul style="list-style-type: none"> ▪ To move people more efficiently, and with far less environmental impact, than the private automobile. ▪ Promote more efficient, compact development patterns.
Euclid Waterfront Improvements Plan, 2009	<ul style="list-style-type: none"> ▪ Improve the Environment. 	<ul style="list-style-type: none"> ▪ Protect and preserve the natural systems and processes active along Euclid's shoreline.

Plan	Goals	Objectives
East Cleveland Master Plan, 2003	<ul style="list-style-type: none"> ▪ Provide a Suitable Living Environment. 	<ul style="list-style-type: none"> ▪ Promote an environmentally safe city through responsible development and responsive enforcement.
Connecting Cleveland 2020 Citywide Plan	<ul style="list-style-type: none"> ▪ Ensure the long-term environmental, economic and social viability of Cleveland and its region. 	<ul style="list-style-type: none"> ▪ Provide high-quality recreation opportunities and facilities that meet the needs of Clevelanders of all ages, ability levels, incomes and interests.
Connections 2035, Northeast Ohio Areawide Coordinating Agency (NOACA), 2013	<ul style="list-style-type: none"> ▪ Enhance the natural environment and ecology of the region by improving air, land and water quality, conserving transportation energy, addressing climate change, and by identifying and preserving existing critical natural resources and environmentally sensitive areas. 	<ul style="list-style-type: none"> ▪ Populations living in balance with their environment are healthy populations. ▪ Greenhouse gas emissions from the transportation sector are playing a significant role in contributing to climate change. ▪ Identify strategies for reducing the region's transportation-related greenhouse gas emissions and incorporate the resulting strategies into the agency's project review, selection, and funding processes.
Cuyahoga County Economic Development Plan, 2011	<ul style="list-style-type: none"> ▪ Foster economic transformation in a manner that promotes economic growth, educational attainment, and environmental stewardship that is systemic and sustainable into the future. 	<ul style="list-style-type: none"> ▪ Promote green and sustainable technologies and solutions to address market and environmental failures and create new economic development opportunities.
LAND USE AND COMMUNITY ENHANCEMENT		
2010-2020 RTA Strategic Plan, 2012	<ul style="list-style-type: none"> ▪ Support regional approaches to transportation and land use planning that reinforce investment in existing employment and population centers, infrastructure and services. 	<ul style="list-style-type: none"> ▪ Maintain and renewing the downtown core, the Euclid Corridor and University Circle; this is vital to the economic and environmental health of the entire region, particularly for Cleveland's neighborhoods and inner suburbs. ▪ Support the integration of regional land use and transportation planning and a renewed focus on maintaining existing infrastructure and services that reinforce this primary employment center. ▪ Support reinvestment in City of Cleveland neighborhoods and the region's urban inner suburbs.
City of Cleveland Climate Action Plan, 2013 (draft)	<ul style="list-style-type: none"> ▪ Encourage vibrant downtown and neighborhoods 	<ul style="list-style-type: none"> ▪ Green the zoning and land use codes to encourage sustainable development. ▪ Prioritize sustainability and rightsizing in City infrastructure upgrades and improvements.

Plan	Goals	Objectives
Downtown Euclid Transportation and Redevelopment Plan, 2007	<ul style="list-style-type: none"> ▪ Strengthen and integrate the neighborhoods. 	<ul style="list-style-type: none"> ▪ Strengthen, enhance and expand the heart of a community to add value and identity, re-energize the public realm and establish more meaningful and cohesive connections to its surroundings.
East Cleveland Master Plan, 2003	<ul style="list-style-type: none"> ▪ Maintain and revitalize neighborhoods ▪ Improve community image. ▪ Maintain and improve the physical appearance and use of park and recreation areas. ▪ Improve the image and identity of the residential, commercial, and industrial areas through public right-of-way improvements, attractive street amenities, landscaping, well-designed building rehabilitation, and new construction projects. 	<ul style="list-style-type: none"> ▪ Provide clean, attractive retail stores and services that meet the needs of the residents and the business community. ▪ Offer a variety of housing choices to keep existing residents and attract new residents to the City of East Cleveland. ▪ Emphasize strategies that increase homeownership opportunities. ▪ Maintain, reuse, and revitalize both the existing building stock and the vacant land in the city through a variety of public and private initiatives. ▪ Maintain and rehabilitate existing infrastructure (streets, sidewalks, curbs, street lighting, water lines, sanitary sewers, parking lots, and city facilities).
Connecting Cleveland 2020 Citywide Plan	<ul style="list-style-type: none"> ▪ Provide new and renovated housing that meets the needs and preferences of Clevelanders of all incomes, ages and lifestyles. ▪ Connect communities and their institutions in a manner that nurtures the physical, mental and spiritual life of all residents. 	<ul style="list-style-type: none"> ▪ Give highest priority among the City's housing initiatives to the provision of decent and affordable housing for all Clevelanders. ▪ Provide a diversity of housing types in neighborhoods throughout the City, maximizing choices for residents of all economic and social circumstances. ▪ Give priority to housing rehabilitation as the most effective means of making affordable housing available to the greatest number of residents.
Connections 2035, Northeast Ohio Areawide Coordinating Agency (NOACA), 2013	<ul style="list-style-type: none"> ▪ Preserve and increase the vibrancy of the urban core areas by promoting improvements in the transportation infrastructure within them. ▪ Foster improvement in the quality of life of residents in the region through attention to aesthetics in the planning of the transportation system. 	<ul style="list-style-type: none"> ▪ An aesthetically designed transportation system can improve the quality of life of the region's residents. ▪ Direct the plan and its investments toward efficient, compact land use development/redevelopment that facilitates accessibility, saves infrastructure costs, preserves and enhances farmland, forests and open space and enhances the economic viability of existing communities within the region.

Plan	Goals	Objectives
Cuyahoga County Economic Development Plan, 2011	<ul style="list-style-type: none"> ▪ Create high-quality, well-connected places that provide our residents with great communities to live, work, play and learn. 	<ul style="list-style-type: none"> ▪ A quality place with a mix of vibrant distinctive walkable neighborhoods, natural and cultural amenities, and a strong sense of place will attract people and businesses. ▪ Quality places require balanced and multi-modal transportation systems, including public transportation, pedestrian and bicycle trails. ▪ Quality places require quality housing at a range of values throughout the region.
Environmental Assessment Report Prospect And East 21st Street Intermodal Center East Side Transit Center, 2005	<ul style="list-style-type: none"> ▪ Improve Quality of Life for those Visiting, Working or Living near the East Side Transit Center. 	<ul style="list-style-type: none"> ▪ Providing off-street bus bays would enhance the local urban environment and improve the quality of life for local businesses, institutions, residents and visitors.
St. Clair Avenue Revitalization, 2003	<ul style="list-style-type: none"> ▪ Create pockets of pedestrian-oriented development. 	<ul style="list-style-type: none"> ▪ Concentrate retail in a cohesive commercial or mixed-use district to implement pedestrian-oriented retail pocket concepts.

FTA Project Justification Criteria

The project goals and objectives must meet the FTA project justification criteria. The MAP-21 criteria are listed below. All carry the same weight for determination of project justification.

- Mobility Improvements (16.66%);
- Environmental Benefits (16.66%);
- Cost Effectiveness (16.66%);
- Economic Development (16.66%)
- Land Use (16.66%); and
- Congestion Relief (16.66%).

Table 2 lists the evaluation measures associated with each of these criteria:

Table 2: FTA Project Justification Criterion and Evaluation Measures

Justification Criterion	Evaluation Measure
Mobility Improvements	<ul style="list-style-type: none"> ▪ Total “linked” trips on the project, with each trip by a transit dependent individual counted twice. A linked trip is a trip made on the project whether or not the rider boards or alights on the project or elsewhere in the transit system. ▪ Project trips using the national model, currently being developed by FTA using census data and actual ridership experience. The project sponsor may choose to use local forecasting models also. <p>In the national model, transit dependence will be defined as households that do not own a car; if a local model is use, transit dependence will be either zero-car households or the lowest income level, whichever is used in the local model.</p> <ul style="list-style-type: none"> ▪ No comparison to a baseline is required (as part of MAP-21 streamlining).
Environmental Benefits	<p>Quantified by measuring dollar value of changes in:</p> <ul style="list-style-type: none"> ▪ Air-pollutant emissions, estimated using changes in VMT as a result of the project ▪ Greenhouse gas emissions, estimated using changes in VMT ▪ Transportation energy use (only benefits of reduced reliance on fuel, not emissions-related benefits), estimated using changes in VMT ▪ Safety changes (transportation fatalities and injuries) estimated using changes in VMT and transit-passenger miles. <p>Comparison would be to the existing environment in the current year, or at the option of the project sponsor, to the current year and the no-build environment in the horizon year.</p> <p>Changes in public health would be considered once better methods for calculating those effects are developed.</p>
Cost Effectiveness	<ul style="list-style-type: none"> ▪ Incremental cost per trip on the project; trips by transit-dependent individuals will not receive extra weight for this criterion. ▪ Costs for New Starts include: Annualized cost of the project, including changes in capital, operating, and maintenance costs compared to the existing system, or at the project sponsor’s option, to the existing system in the current year and the no-build system in the horizon year, minus the costs of “enrichments” <p>“Enrichments” are costs for elements that are not required for mobility but rather foster economic development or environmental benefits: artwork, landscaping, pedestrian and bicycle improvements, sustainable building design elements (up to 2.5% of facilities’ cost), 50% of the cost of clean fuel buses, and joint development costs.</p>
Economic Development	<ul style="list-style-type: none"> ▪ Qualitative assessment of the transit-supportive plans and policies in place and demonstrated performance and impact of those policies. ▪ Qualitative assessment with an optional quantitative measure of likely future development outcomes resulting from the project ▪ Consideration of the social equity impacts of projects by examining plans and policies in

Justification Criterion	Evaluation Measure
	place to maintain or increase affordable housing in the corridor.
Land Use	<ul style="list-style-type: none"> ▪ Existing population and employment density, parking supply, and facilities for pedestrians. ▪ Evaluation of the amount of affordable housing currently in the corridor. <p>Affordable housing includes “legally binding affordability restricted” housing, which would be evaluated by comparing such housing in the project corridor with the region’s share overall of such housing.</p>
Congestion Relief	<ul style="list-style-type: none"> ▪ Currently being developed; will be addressed in future rulemaking. Until then, all projects will receive a “medium” rating on this criterion.

DOT-HUD EPA Livability Principles

The livability principles outlined by HUD include the following:

Provide more transportation choices.

- Develop safe, reliable, and economical transportation choices to decrease household transportation costs, reduce our nation’s dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health.

Promote equitable, affordable housing.

- Expand location- and energy-efficient housing choices for people of all ages, incomes, races, and ethnicities to increase mobility and lower the combined cost of housing and transportation.

Enhance economic competitiveness.

- Improve economic competitiveness through reliable and timely access to employment centers, educational opportunities, services and other basic needs by workers, as well as expanded business access to markets.

Support existing communities.

- Target federal funding toward existing communities—through strategies like transit oriented, mixed-use development, and land recycling—to increase community revitalization and the efficiency of public works investments and safeguard rural landscapes.

Coordinate and leverage federal policies and investment.

- Align federal policies and funding to remove barriers to collaboration, leverage funding, and increase the accountability and effectiveness of all levels of government to plan for future growth, including making smart energy choices such as locally generated renewable energy

Value communities and neighborhoods.

- Enhance the unique characteristics of all communities by investing in healthy, safe, and walkable neighborhoods—rural, urban, or suburban

Project Goals and Objectives

Based on the review of regional goals and objectives identified in previous studies and plans; FTA’s project justification requirements under MAP-21 for Small/New Starts Projects; and DOT-HUD EPA Livability Principles, the goals and objectives were developed for the project and is included in the body of the Purpose and Need document.