# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXECUTIVE SUMMARY</td>
<td>1</td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>19</td>
</tr>
<tr>
<td>2. CREATING A COORDINATED VISION</td>
<td>29</td>
</tr>
<tr>
<td>3. THE COMMUNITY’S VISION</td>
<td>35</td>
</tr>
<tr>
<td>4. NEED FOR NEXTGEN</td>
<td>43</td>
</tr>
<tr>
<td>5. NEXTGEN STRATEGIES</td>
<td>57</td>
</tr>
<tr>
<td>6. PHASING AND FUNDING OPTIONS</td>
<td>85</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

July 2017
Executive Summary

The Community’s Vision

**NextGen is the community’s vision for the future of transit and a transformative effort to keep central Ohioans on the move for decades to come.**

Shaped by technical analysis and conversations with community and business leaders, stakeholders and residents, NextGen is designed to get people to their destinations more quickly and conveniently, connect residents with jobs, and support efforts to create communities where young and old alike want to live, work and raise a family – during a time of unprecedented growth.

**NEXTGEN GOALS**

**Lead the community in a visioning exercise** to determine what central Ohio’s public transportation system needs to accomplish in the coming decades to ensure current and future residents have access to jobs, housing, education and services.

**Prepare central Ohio for future growth** by identifying transit investments that integrate with regional plans and goals. Critical regional goals include maintaining regional competitiveness, minimizing sprawl, and responding to demographic preferences.

**Support local and regional plans with transit investment options.**

**Identify conventional and creative revenue options** that offer potential to support the recommended vision and ensure the concepts can be implemented.

NextGen has Three Components

**HIGH CAPACITY TRANSIT**

... which moves more people, faster, in less physical space, attracts new development and focuses growth.

**SMART MOBILITY OPTIONS**

... such as self-driving vehicles, first/last mile services, and smart apps, which makes planning and paying for transportation services and job access easier than ever.

**ENHANCED BUS SERVICE**

... that runs more frequently, to more places—ensures residents can access jobs and employers can attract employees because transportation is accessible 24-hours a day.
COTA kicked off the NextGen long-range visioning effort in 2015 by asking the community to envision public transit needs and opportunities over the next 35 years. Collaborating closely with the Mid-Ohio Regional Planning Commission (MORPC), the City of Columbus and COTA’s many member communities, COTA looked at where population and jobs are expected to grow, where road congestion might increase, and how transit might best support the mobility needs of the region.

NextGen aligns with MORPC’s insight2050 findings, which note that population growth occurring today and over the next 30+ years is projected to be dramatically different than in the past. Businesses are now locating where the skilled workforce wants to live and work. Local communities understand that the most desirable places to live are walkable, have a vibrant array of restaurants, shopping and services, and provide transportation choices for people of all ages. NextGen responds to these new trends and the additional desire to focus growth where it can be served most cost-efficiently.

**Figure E-1** Projected Central Ohio Population Growth (7-County insight2050 Region)

“We are on track to being the largest metropolitan region in Ohio”

Source: insight2050
Components

**NETWORK OF HIGH CAPACITY TRANSIT CORRIDORS**

1. **DEVELOP HIGH CAPACITY TRANSIT SERVICES**
   - ... such as bus rapid transit (BRT), light rail, streetcar, and/or commuter rail (see Figure E-2).

2. **LEVERAGE SMART TECHNOLOGY**
   - ... such as autonomous vehicles and app-based ride sharing to make it easier to connect between home, high capacity transit and that last mile to work.

3. **MAKE TRANSIT EASIER TO UNDERSTAND AND USE**
   - ... by making fare payment and real-time arrival information available electronically and accessible from smart phones, and by providing wifi on-board buses.

**BY 2025**
- Implement one high capacity transit line

**BY 2025**
- Implement emerging smart mobility pilot programs in one zone to provide first/last mile connections or late-night service

**BY 2025**
- Upgrade technology with mobile fare payment, real-time arrival information, and on-board wifi

**BY 2040**
- Implement three additional high capacity transit lines

**BY 2040**
- Expand smart mobility programs to two additional zones, providing first/last mile connections to job centers and neighborhoods not served by fixed-route transit

**BY 2040**
- Continue to incorporate technology innovations into the transit user experience

**BY 2050 AND BEYOND**
- Implement seven additional high capacity transit lines

**BY 2050 AND BEYOND**
- Further expand smart mobility programs to include three additional zones

**BY 2050 AND BEYOND**
- Continue to incorporate technology innovations into the transit user experience
Components (continued)

**IMPROVEMENTS TO THE BUS NETWORK**

### 4 IMPROVE EXISTING SERVICES

... by increasing frequency and extending span of service.

### 5 EXPAND SERVICE TO NEW AREAS

... by extending existing routes or creating new connections (see Figure E-3).

### 6 EXPAND FREEWAY BASED EXPRESS SERVICES

... to include connections to, from, and between suburban communities and job centers at all times of day (see Figure E-4).

#### BY 2025

- Operate all high frequency routes until 9:00 p.m.
- Upgrade three existing routes to 15-minute all day service

#### BY 2025

- Add crosstown service between Dublin, Grove City, Westerville, and Reynoldsburg

#### BY 2025

- Implement one all-day and one new, peak-only commuter express route

#### BY 2040

- Operate all standard service at least every 30 minutes
- Upgrade four existing routes to run every 15 minutes

#### BY 2040

- Add crosstown service between New Albany, Westerville, and Dublin

#### BY 2040

- Implement two all-day and one peak-only commuter express routes to regional job centers

#### BY 2050 AND BEYOND

- Upgrade three existing routes to 15-minute service

#### BY 2050 AND BEYOND

- Add crosstown service between Easton, New Albany, Canal Winchester, Groveport, West Columbus, Hilliard, and Dublin

#### BY 2050 AND BEYOND

- Implement two all-day and five commuter express routes to regional job centers
What is High Capacity Transit?

**Bus Rapid Transit (BRT)**

Bus rapid transit (BRT) operates in a combination of exclusive rights of way and mixed traffic. Like rail service, BRT service offers riders increased frequency plus other enhancements such as increased speed, reliability, and comfort through distinctive vehicles, off-board fare payment, traffic signal priority, and station amenities. Cleveland’s HealthLine has attracted more than $4 billion in development since opening in 2008.

**Light Rail Transit (LRT)**

Light rail provides urban rail service that operates in a combination of exclusive rights-of-way and mixed traffic. Stops are usually every 1 to 2 miles. It is designed to serve high volume corridors over longer distances at moderate speeds. The Minneapolis Green Line attracted $5 billion in development in the corridor since opening in 2014.

**Streetcar**

Streetcar service is a high capacity rail mode that operates in a combination of mixed traffic and exclusive rights-of-way in urban areas. Streetcars typically stop more frequently than light rail, resulting in a lower operating speed. Streetcars tend to have shorter alignments, with lines less than 3 miles being common. Kansas City’s streetcar attracted $381 million in development in the first year since opening.

**Commuter Rail**

Commuter rail service provides fast rail service in longer, high-volume corridors, and typically has stations every five to 10 miles. Service operates on exclusive rights-of-way, often on rail lines that are owned by freight railroads. Whereas BRT, light rail, and streetcar operate throughout the day, commuter rail usually operates at peak times only. New development typically occurs around rail stations.
Why Invest in High Capacity Transit?

With central Ohio predicted to grow by up to 1 million people by 2050, the region will need to support a significantly increased level of travel demand. A natural outcome of increased demand will be increased congestion, which has been predicted by MORPC’s regional model. Insight2050 examined four different growth scenarios, all of which assumed the same amount of growth in the region, but different levels of density. Compared to past growth trends, scenarios with increased density are predicted to result in reduced costs at the government and household level, and reduced impact on natural resources. In essence, increasing density is the most cost effective and sustainable way to accommodate growth. High capacity transit plays a key role in attracting and moving people who live in densely developed areas.

While improvements to a local bus network can increase ridership, local bus service does not lead to transformative land use and economic development changes. Buses will also continue to get slower and less competitive as traffic congestion increases.

In contrast, high capacity transit has spurred development in concentrated corridors across the U.S. This makes the economic benefits for outweigh the investment costs. NextGen has taken the first steps to identify corridors in which the community envisions high capacity transit, which will facilitate denser development as the region grows.
Proposed High Capacity Transit Network

Figure E-2 Conceptual NextGen High Capacity Transit Corridors

Potential High Capacity Transit Corridors

All alignments are conceptual. The final alignments and modes will be determined during the project development process.

- **Bus Rapid Transit (BRT)**
- **Commuter Rail**
- **Light Rail**
- **Streetcar**
- **In Rail Right of Way**

Note: Additional corridors may be developed as communities grow and update plans to support high capacity transit.
Where do the Potential High Capacity Transit Corridors Go?

- **A**
  - Downtown to Reynoldsburg via Main Street

- **B**
  - Downtown to Worthington via North High Street

- **C**
  - Columbus State to Franklinton

- **D**
  - Cleveland Avenue CMAX Upgrade

- **E**
  - Downtown to Reynoldsburg via East Livingston Avenue

- **F**
  - Downtown to Reynoldsburg via East Broad Street

- **G**
  - Downtown to Alum Creek Drive via East Whittier Street

- **H**
  - Lincoln Village to Downtown via West Broad Street

- **I**
  - Downtown to Polaris via 3rd Street and Commercial Railway

- **J**
  - Grandview Area to the Airport via 5th Avenue

- **K**
  - Eastland Mall to Easton via James Road and Stelzer Road

- **L**
  - Downtown-Airport-Easton via 5th Avenue and Stelzer Road

- **M**
  - Downtown to Dublin Bridge Street District via Olentangy River Road

- **N**
  - Newark to Downtown Commuter Rail
Proposed Local Bus Network

Figure E-3  Proposed Local Bus Expansion
Proposed Commuter Bus Network

Figure E-4 Proposed New Commuter Service
NextGen is Smart

Smart mobility options are cost effective, innovative new services to provide first and last mile connections to home and jobs with autonomous vehicles and app-based ride sharing. The City of Columbus, winner of the United States Department of Transportation (USDOT) Smart City Challenge, is partnering with COTA to test self-driving transit shuttles in the Easton area as part of the Smart Columbus effort. COTA has partnerships with SMART Ride in New Albany and GREAT in Groveport/Rickenbacker, which are existing scheduled shuttle services that provide first/last mile services in each respective business park. Other examples of these smart mobility options include partnerships with Transportation Network Companies (TNCs) such as Lyft, Uber or taxis, and flexible, on-demand fixed-route shuttles.

Smart mobility options can attract more discretionary riders and provide a cost-effective, convenient option for areas and times of day or night with lower transit demand.

APPLICATIONS FOR SMART MOBILITY OPTIONS INCLUDE:

- Provide service between 1 a.m. to 5 a.m.
- Suburban smart mobility partnerships
- Shared-ride access to hard-to-reach job sites
- First/last mile access to home and work
Collaborative Efforts

NextGen has coordinated public involvement, technical analysis and information sharing with concurrent planning efforts, including:

• The City of Columbus’s Connect ColumbUS Multimodal Thoroughfare Plan and Smart Columbus initiative;
• MORPC’s Metropolitan Transportation Plan and insight2050 findings; AND
• Transportation and land use planning efforts in Westerville and Dublin, among others.

As a result, NextGen recommendations reflect and build upon transit improvements desired by local communities. Likewise, partner agencies and communities are encouraged to use NextGen to inform ongoing and future discussions relating to transportation in the region. We look forward to this continued collaboration with our partners to transform mobility in central Ohio.
The Community’s Voice Was Heard

The NextGen Vision was shaped by extensive public and stakeholder engagement. Public input helped define community values and identified needs and opportunities. It also shaped in initial improvement options and the subsequent alternative refinement process. These five community values emerged from public input and served as the guiding principles in the development of the NextGen Vision.

MAKE BETTER CONNECTIONS
Extend transit’s reach further.

INVEST IN UNDERSERVED COMMUNITIES
Direct transit investment to specific corridors and neighborhoods.

COORDINATE WITH GROWTH
Encourage focused growth in existing neighborhoods and fast-growing areas.

BUILD ON SUCCESS
Improve existing service.

SUSTAINABILITY
Protect the environment and reduce greenhouse gas emissions.

Funding the Vision

NextGen was developed without defined funding sources or budget constraints in order to create a vision that is tailored to the aspirations and needs of the region. It will, however, require building new infrastructure, acquiring more vehicles and expanding budgets to operate and maintain new and enhanced transit services.

It is estimated that between $4.9- and $5.4-billion in capital funds will be necessary to build out NextGen over the next 35 years. In addition, transit operating budgets will need to increase by $113- and $127-million annually between now and 2050. Though central Ohioans contribute to transit service today through a 0.5 percent local sales tax, additional sources of local, state and/or federal funding will be needed to make the vision outlined in NextGen a reality.

NextGen is one piece of a broader investment in the robust transportation network needed to accommodate regional growth in the coming years. Other examples include the Columbus Crossroads interstate 70/71 reconstruction through downtown Columbus ($1.1 billion), and the widening of I-270 in North Columbus ($390 million).

Benefits of Transit Investment

- 87% of public transit trips impact the economy.
- Every $1 invested in public transportation generates approximately $4 in economic returns.
- Every $1 billion invested in public transportation supports and creates more than 50,000 jobs.
- Every $10 million in capital investment in public transportation yields $32 million in increased business sales.
- Residential property values performed 42% better on average if they were located near public transportation with high-frequency service.


1 All capital and operating costs are in 2016 dollars.
How NextGen Could Change Transportation in Central Ohio

NextGen calls for improving and expanding existing transit service, implementing new types of mobility services, and developing high capacity transit such as bus rapid transit (BRT), light rail, streetcar and/or commuter rail. COTA’s new network, implemented by COTA in May 2017 took crucial first steps in transforming the bus network into a more effective system with resources that exist today.

If NextGen were implemented by 2050, more than 250,000 more people and jobs would be within a quarter mile (five minute walk) from transit service. Over 75% more people and jobs would be within a short walk from high frequency transit service (operating every 15 minutes or better). With central Ohio predicted to grow significantly, it is more important than ever that residents are able to access jobs in the safest, most convenient and efficient way as possible. While self-driving vehicles are expected to become a major component of our transportation system, it will be as important as ever to move more people efficiently. NextGen’s combination of technology innovations, high capacity transit and on demand services will facilitate this movement so central Ohio can continue to thrive.

Figure E-5  Access within ¼ Mile of Frequent (15 min) Network
TSR population and jobs figures are based on 2015 data
What is Included in this Vision?

In undertaking this process, COTA set out to guide the community through development of a long-term vision for our regional transit system. We did so with the understanding that this vision would need to provide flexibility for emerging technology and opportunities for each community to define their goals and level of investment within the larger system. As a result, the NextGen Vision does not provide detailed solutions to all the transit questions that must be answered in the years to come. Here’s what this vision brings to the conversation:

- **VISION FOR INVESTMENT**: A vision of the types of transit investments that can be implemented.
- **INTEGRATION**: A concept of how individual projects/services can be integrated into a comprehensive system.
- **MECHANISM FOR DISCUSSION**: A mechanism for promoting more in-depth conversations about the future of mobility in central Ohio.
- **INITIAL IMPLEMENTATION**: First steps toward short-term implementation and visioning for long-term improvement.
- **COSTING**: Estimates of potential project construction costs based on recent experience with other cities.
- **COMMUNITY RESOURCE**: A resource for communities within the region to use as they undertake their own transportation planning efforts.

In order to advance the NextGen vision, additional detail will need to be developed through future planning processes at the municipal, county and regional levels. The preferred mode for each high capacity transit corridor will need to be selected by community stakeholders. Detailed cost projections and phasing options will need to be refined from the high-level recommendations presented by NextGen.
Next Steps

NextGen reflects the desires of the very broad base of stakeholders and public who were consulted as part of this effort, but it will require substantial investment to implement and be challenging to fund. The community must now begin working together to develop new funding options.

In the near term, COTA, its partner agencies and local municipalities can move forward with components of NextGen that have a direct path to implementation. This includes leveraging Smart Columbus to integrate more technology into transit, building on the recently implemented bus network with further frequency enhancements, and expanding the reach of the bus network to job sites through partnerships with municipalities and freeway-based commuter services.

Developing a network of high capacity transit service will require additional planning and consensus building to determine the order in which to implement corridors and how they will be funded. Corridors selected for implementation in the next ten years must move beyond conceptual visioning into project development. COTA will create a community-based steering committee to prioritize components of the NextGen Vision. The steering committee will consist of COTA Board of Trustee members, the business community, public officials, major stakeholders, and the general public to set the direction for prioritizing NextGen projects and develop funding alternatives.
INTRODUCTION
Introduction to NextGen

As the primary provider of public transit services in central Ohio, the Central Ohio Transit Authority (COTA) has undertaken a long-range visioning effort—NextGen—to identify public transportation needs and opportunities through 2050. NextGen presents a strategy building on the regional momentum currently transforming Columbus into a world-class city by laying out a vision for a world-class public transportation system. This vision was identified through an extensive public engagement process between January 2015 and June 2017 during which more than 4,500 conversations with community leaders, stakeholders, and the public resulted in a robust strategy to keep our region on the move for decades to come.

The need for the NextGen study reflects central Ohio’s continued growth: between 1980 and 2010 central Ohio grew by half a million people, increasing the population by one third. Insight2050, a recent effort to prepare central Ohio for future growth, projects the seven-county region will add 1 million residents and 300,000 jobs by 2050.1 NextGen is part of a regional effort to plan for this growth and was developed through close coordination with the Mid-Ohio Regional Planning Commission’s (MORPC) 2016-2040 Columbus Area Metropolitan Transportation Plan (MTP), the City of Columbus ConnectColumbUS Multimodal Plan, Smart Columbus, the Jobs Expansion and Transportation (JET) Taskforce, and planning efforts led by surrounding municipalities.

MORPC’s MTP identifies transportation deficiencies, policies, strategies, and projects through 2040 which will support projected growth while accomplishing regional goals related to energy consumption, natural resource protection, economic opportunity, and creating sustainable neighborhoods. Transit plays a major role in meeting these regional goals.

ConnectColumbUS creates a framework for enhancing alternative forms of transportation in Columbus and has collaborated with NextGen to identify opportunities to use transit as a catalyst for infill development and promote equitable access to transportation.

As the winner of the United States Department of Transportation (USDOT) Smart City challenge, “Smart Columbus” is advancing the use of technology in transportation and multi-modal information sharing. Initiatives include autonomous vehicle pilots, development of smart corridors and mobile ticketing and trip planning applications.

The JET Taskforce is comprised of leaders from the business, economic development, and transportation sectors in Columbus focused on how to best redefine John Glenn International Airport as an economic hub and center of transportation in the region. The Taskforce identified needs and investigated options for transit connections to the airport to support air travel and employment which were incorporate into NextGen.

1  http://getinsight2050.org/
NextGen reflects a holistic vision for public transportation that achieves regional goals by leveraging current and emerging forms of transportation technologies. In addition to collaboration with MORPC and City of Columbus, NextGen was developed by coordinating with suburban communities in central Ohio who have defined, or are in the process of defining their own visions for adapting to and accommodating growth.

As the region grows, demand for infrastructure, including schools, housing, retail, and office space will increase. There will be more demand for transportation to and from new development in both urban and suburban communities, resulting in increased congestion levels. Now is the time to rethink the role transit plays in the overall transportation network, including where and how services are provided. Along with growth, cultural trends taking shape nationally and locally in central Ohio are creating opportunities for transit investment. Residents of central Ohio, like people across the state and nation, are demonstrating new preferences for how they live and work by showing a stronger interest in lifestyles and communities that are bikeable, walkable, and have transit.2 The impact of these preferences are evident in the residential development in downtown Columbus, urban village style developments in Dublin and Westerville, and the success of restaurants and cafes in the Short North neighborhood as examples.

Just as changes in development patterns have implications for transportation and public transit, innovation in technology in recent years has spurred new trends that shape opportunities for transit. Smartphones can integrate with public transit to provide real-time schedule information to riders and facilitate cashless fare payment. Mobile applications for on-demand transportation have rapidly changed the ease with which shared rides can be coordinated. Though still in the early stages of testing, autonomous vehicles may further optimize transportation networks.

Transit will play a role in shaping the future of communities in central Ohio by creating opportunities for growth and ensuring people can travel easily, even as the region adds people and jobs. Within this context, the overarching goals of NextGen are to:

- **Lead the community in a visioning exercise** to determine what central Ohio’s public transportation system needs to accomplish in the coming decades to ensure current and future residents have access to jobs, housing, education and services.
- **Prepare central Ohio for future growth** by identifying transit investments that integrate with regional plans and goals. Critical regional goals include maintaining regional competitiveness, minimizing sprawl, and responding to demographic preferences.
- **Support local and regional plans** with transit investment options.
- **Identify conventional and creative revenue options** that offer potential to support the recommended vision and ensure the concepts can be implemented.

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Dublin Bridge Street District

Dublin’s Bridge Street District is an example of how suburban communities can move toward more transit supportive development. Dublin has created a 40 year vision for a 1,100 acre area along the Scioto River between Sawmill Road and I-270. The plan for the Bridge Street District marks a significant shift away from traditional suburban development patterns seen in other parts of Dublin.

The Bridge Street District responds to demographic shifts and changing preferences for transportation choices and walkable communities, including the creation of street grid system, and a dense mix of housing types, office space, retail, and entertainment.

The NextGen Vision supports the efforts of municipalities seeking to change with transformative mobility enhancements.

[bridgestreet.dublinohiousa.gov](http://bridgestreet.dublinohiousa.gov)
As the regional transit provider, COTA operates transit service to more than 1.2 million residents living in Franklin County and parts of Delaware, Fairfield, Union and Licking counties.

Since 1990, COTA’s primary funding source has been a local 0.25% sales tax. This tax, plus passenger fares, federal funds, and revenues earned through advertisements and contracts, fueled the system for 15 years. The pace of change at COTA, however, shifted dramatically in 2006, when voters in central Ohio approved a renewable sales tax that nearly doubled the resources available to the agency. The 2006 renewable sales tax levy increased COTA’s sales tax to 0.50% (0.25% continuous plus 0.25% renewable), and was renewed in 2016 with 73% of voters supporting COTA.

With additional resources since 2006, COTA improved and diversified its services with new bus routes, expanded frequencies, and longer service hours. COTA added more than 500,000 annual service hours to the network between 2006 and 2016. The increased resources also helped COTA leverage more than $140 million in federal grants. Using these resources, COTA updated its vehicles, facilities, passenger amenities, and technology systems.

On May 1, 2017, COTA implemented a new bus network, the Transit System Redesign (TSR). The purpose of the TSR was to modernize COTA’s routes to fit better the origins and destinations of transit users, including connections to downtown Columbus as well as between destinations outside of downtown. The new bus network allocated 70% of bus service to high-ridership lines, and 30% of bus service to coverage lines, which connect people to employment and other major destinations in less dense areas. Ridership is expected to increase by 10% after two years with no increase in funding.
A major benefit of the new network is a significant increase in the number of routes that operate at least every 15 minutes all day, creating a Frequent Transit Network. Service of this quality has the potential to attract new riders due to increased convenience and ability to anticipate a bus arrival without relying on a schedule. With the TSR network, more residents and employment locations have access to high quality service, expanding the market of transit riders. NextGen builds upon this new market potential, and identifies areas where, based on community input, services could be expanded or enhanced with additional investment. COTA has collaborated with the community in creating a vision for the Next Generation of transit in central Ohio.

In 2014 COTA implemented the CBUS, a free, frequent, downtown circulator that connects the Brewery District, Downtown, and the Short North along High Street. The CBUS evolved out of a partnership with downtown employers and developers, providing a portion of the operating costs, and carries more than 2,000 riders per weekday.

The CBUS is a new type of service and has attracted riders such as downtown employees and visitors to Columbus that have not traditionally used COTA services in the past. The success of the CBUS indicates that there is a market of potential transit riders that COTA has yet to tap into. NextGen builds on the momentum created by diversifying COTA’s service offerings and customer base.
Components of the NextGen Vision

The NextGen Vision includes three primary components, each of which may be implemented through one or more strategies, summarized below and described in detail in Chapter 5.

**HIGH CAPACITY TRANSIT**

... which moves more people, faster, in less physical space, attracts new development and focuses growth.

**SMART MOBILITY OPTIONS**

... such as self-driving vehicles and smart apps, which makes planning and paying for transportation services and job access easier than ever.

**ENHANCED BUS SERVICE**

... that runs more frequently, to more places, ensuring that residents can access jobs and employers can attract employees because transportation is accessible 24-hours a day.
Benefits of the NextGen Vision

The NextGen Vision calls for developing high capacity transit such as bus rapid transit (BRT), light rail, streetcar and/or commuter rail, implementing new types of mobility services, and improving and expanding existing transit service. The May 2017 TSR took crucial first steps in transforming the bus network into a more effective system, laying the foundation upon which the NextGen Vision is built.

If NextGen were implemented by 2050, over 250,000 more people and jobs would be within a quarter mile (five minute walk) from transit service; while over 75% more people and jobs would be within a short walk from high frequency transit service (operating every 15 minutes or better). With central Ohio predicted to grow significantly, it is more important than ever that residents are able to access jobs in the safest, most convenient, and most efficient way possible. NextGen’s combination of technology innovations, high capacity transit, and improvement to existing services will facilitate this movement so central Ohio can continue to thrive.

![Figure 1-2 Access within ¼ Mile of Frequent (15 min) Network](credit: Nelson\Nygaard)
What is Included in this Vision?

In undertaking this process, COTA set out to guide the community through development of a long-term vision for our regional transit system. We did so with the understanding that this vision would need to provide flexibility for emerging technology and opportunities for each community to define their goals and level of investment within the larger system. As a result, the NextGen Vision does not provide detailed solutions to all the transit questions that must be answered in the years to come. Here’s what this vision brings to the conversation:

VISION FOR INVESTMENT
A vision of the types of transit investments that can be implemented

INTEGRATION
A concept of how individual projects/services can be integrated into a comprehensive system

MECHANISM FOR DISCUSSION
A mechanism for promoting more in-depth conversations about the future of mobility in central Ohio

INITIAL IMPLEMENTATION
First steps toward short-term implementation and visioning for long-term improvement

COSTING
Estimates of potential project construction costs based on recent experience with other cities

COMMUNITY RESOURCE
A resource for communities within the region to use as they undertake their own transportation planning efforts

In order to advance the NextGen Vision, additional detail will need to be developed through future planning processes at the municipal, county and regional levels. The preferred mode for each high capacity transit corridor will need to be selected by community stakeholders. Detailed cost projections and phasing options will need to be refined from the high-level recommendations presented by NextGen.
CREATING A COORDINATED VISION
Creating a Coordinated Vision

NextGen is part of a regional effort to ensure that the economic vitality and quality of life in central Ohio are maintained as the region grows. As the facilitator of the NextGen process, COTA is one of multiple regional partners working toward achieving that vision.

This chapter describes planning processes that have taken place concurrently with NextGen as well as those that were completed prior to NextGen and contain relevant transportation components. The discussion below highlights complementary goals set by other planning processes and direct linkages between those goals and the NextGen Vision.

MORPC MTP

MORPC’s 2016-2040 Metropolitan Transportation Plan is a long-range planning document that identifies transportation deficiencies, policies, strategies and projects over the next two decades. The MTP was developed around the following set of goals focused on making regionally based investments in central Ohio’s transportation system:

**ENERGY CONSUMPTION**
Reduce per capita energy consumption and promote alternative fuel resources to increase affordability and resilience of regional energy supplies.

**SUSTAINABLE NEIGHBORHOODS**
Create sustainable neighborhoods to improve residents’ quality of life.

**HEALTHY ECOSYSTEM**
Protect natural resources and mitigate infrastructure vulnerabilities to maintain a healthy ecosystem and community.

**REGIONAL COLLABORATION**
Increase regional collaboration and employ innovative transportation solutions to maximize the return on public expenditures.

**ECONOMIC OPPORTUNITY**
Position central Ohio to attract and retain economic opportunity to prosper as a region and compete globally.

**PUBLIC INVESTMENTS**
Use public investments to benefit the health, safety, and welfare of people.
Throughout the NextGen process, MORPC staff were involved in examining market demand, potential transit investment strategies, and refinement of strategies in the NextGen Vision. In addition, MORPC’s regional growth and travel demand projections were critical in providing a common understanding between NextGen and the MTP of the challenges that the region will face and the role that transit can play in addressing them.

The NextGen process was shaped by MORPC’s goals. The NextGen Vision is an element of MORPC’s multi-modal approach that includes transformative options to improve sustainable transportation, improve job access, maintain the region’s economic development potential, and further support the region’s anticipated growth.

The NextGen Vision is an element of MORPC’s multi-modal approach that includes transformative options to improve sustainable transportation, improve job access, maintain the region’s economic development potential, and further support the region’s anticipated growth.

Connect ColumbUS

Connect ColumbUS is the City of Columbus’s multimodal thoroughfare plan. The purpose of the project is to improve safety, reduce congestion, promote equitable access to transportation, and foster economic development, public health, and environmental responsibility.

The implementation of Connect ColumbUS is guided by the following six goals, developed through outreach and engagement with residents, businesses, and city leadership:

- **Neighborhood Vitality**: Transportation investments should contribute to the creation of strong and vibrant neighborhoods, and be responsive to each neighborhood’s unique character and needs.
- **Health and Safety**: Transportation investments should contribute to healthy living and quality of life for all residents, creating balanced access to transportation options that promote health, well-being, and safety.
- **Equitable Access**: Transportation investments should address the needs of all users, and provide quality transportation options that are socially and economically inclusive.
- **Fiscal Sustainability**: Transportation investments should be affordable for current and future generations, with a priority on those that can be sustained long-term.
- **Environmental Sustainability**: Transportation investments should seek to improve air quality, reduce resource consumption, and promote sustainable transportation solutions.
- **Economic Development**: Transportation investments should promote economic opportunity and community prosperity by building infrastructure that helps to connect people to jobs and enhance overall access.

Through a coordinated public involvement process in which input gathered from the public was shared between NextGen and Connect ColumbUS, as well as collaboration with the Connect ColumbUS project team, a clear nexus between the two efforts emerged: the desire to use land use and transportation policy to create denser corridors that support high capacity transit. The project teams worked together to identify potential growth nodes that were used to evaluate the ability of potential corridors to attract investment in neighborhoods of Columbus that are well positioned for redevelopment. The result of this coordination is a common set of potential high transit improvements recognized by both efforts that can be used to guide land-use policy and target growth to create transit supportive development.
Smart Columbus

Columbus competed against 77 cities nationwide in the United States Department of Transportation (USDOT) Smart City Challenge in 2016, winning $40 million funded by USDOT and $10 million funded by Vulcan, Inc., which will be used to explore and implement emerging technology in transportation that supports the following goals:

Several technology initiatives being facilitated by Smart Columbus are transit specific, including:

- **Multimodal trip planning** to help users get where they are going whether it’s on transit, by bike, in a car, or a combination.
- **Common payment for transportation services** that reduces the need for multiple transactions while making a multimodal trip.
- **Smart Mobility Hubs** that consolidate access to multiple transportation modes, including car-share, bike-share, and transit into one location.
- **Connected electric autonomous vehicles** that will operate on set routes in Easton Town Center to connect visitors to their destinations.

The key elements of the Smart Columbus technology enhancements is to utilize existing transportation infrastructure and capacity more effectively, which is a shared goal of the NextGen process. The NextGen process was informed by Smart Columbus, and incorporates innovative methods to improving customer access through new travel modes and information. Examples of such Smart Columbus efforts include first/last mile solutions, autonomous vehicles, mobility hubs, and real-time planning tools.

JET Taskforce

The Jobs Expansion and Transportation (JET) Taskforce is comprised of leaders from the business, economic development, and transportation sectors in Columbus focused on how to best redefine John Glenn International Airport as an economic hub and center of transportation in the region. One of the four key recommendations made by the Taskforce was for the community to pursue more transportation alternatives for the airport area, including a downtown Columbus rail connection and an airport area multimodal transportation center. The NextGen process confirmed that there is strong support in the community for high capacity transit connecting to John Glenn International Airport. Accordingly, the NextGen Vision includes multiple potential high capacity transit corridors that would serve the airport terminal directly or connect to airport shuttle services at a multimodal hub. NextGen enhances job access, links citizens to air travel, and improves visitor experience with connections to the airport area.
Local Planning Efforts

Several communities in central Ohio have undertaken planning efforts, defining visions for land use and transportation that have the opportunity to support the NextGen Vision. These include the Imagine Westerville Community Plan and the Dublin Bridge Street District Plan. In addition, the Grove City 2050 initiative, Dublin Mobility Study, and Rickenbacker Area Study are efforts that are still in initial planning stages, and will develop strategies to position each community for success as the region grows and changes. As these and future planning efforts are conducted, NextGen will coordinate to ensure that the NextGen Vision is tied to each community’s plans for the future of transportation.
THE COMMUNITY’S VISION
Community Involvement in Creating the NextGen Vision

Between March 2015 and June 2017 the NextGen team engaged central Ohioans in the process of creating a vision to guide investment transit in the region over the next 35 years.

NextGen carried out a three-phase engagement process that sought input before, during, and after the development of transit investment options, ensuring that the community’s feedback played a meaningful role in shaping the vision.

Through these efforts, over 4,500 individual engagements took place, including 1,500+ responses to each of two online surveys that allowed respondents to express their preferences on investments in specific high capacity transit corridors and complementary improvements to transit and smart mobility options in the region. To ensure that the resulting concepts reflect the community’s vision, the NextGen process was guided by three primary sources of input.

**PHASE 1**
Define community values and identify needs and opportunities

**PHASE 2**
Gather public input on initial transit improvement options

**PHASE 3**
Refine community preferences

Through these efforts, over 4,500 individual engagements took place, including 1,500+ responses to each of two online surveys that allowed respondents to express their preferences on investments in specific high capacity transit corridors and complementary improvements to transit and smart mobility options in the region. To ensure that the resulting concepts reflect the community’s vision, the NextGen process was guided by three primary sources of input.
Chapter 3: The Community’s Vision

Three Sources of Input

PUBLIC PARTICIPATION

Members of the general public, community leaders, and stakeholders were invited to provide input at key points in the technical process using a variety of engagement strategies, described above.

PROJECT ADVISORY GROUP (PAG)

The PAG was formed at the beginning of the NextGen process by inviting a group of approximately 20 individuals representing a diverse set of central Ohio communities, institutions, advocacy groups, and associations to serve in an advisory capacity throughout the NextGen process. The PAG convened on nine occasions, providing feedback on needs and goals, evaluation criteria, initial concepts, priorities, and final recommendations from a variety of perspectives. This community-based advisory group played an integral part in bridging the technical process with the public process by representing the needs and desires of constituent groups in reviewing key findings.

COTA BOARD OF TRUSTEES

COTA’s Board of Trustees is the governing body of COTA and consists of members appointed by Franklin County, City of Columbus, and surrounding suburbs. The Board provided guidance throughout the process with the goal of ensuring that NextGen efforts were coordinated with ongoing planning processes in the region and that the concepts ultimately reflect the community’s vision.
Chapter 3: The Community’s Vision

Definition of Community Values

Between March and June 2015, NextGen conducted its first set of community involvement activities (Phase 1). A primary focus of these efforts was to define values held by the community that would play a role in shaping the NextGen Vision. Key themes that emerged from discussions with the community were:

Columbus and central Ohio are positioned for continued success and opportunity

- A strong, reliable, and innovative public transportation system is critical
- Transit is essential to a healthy downtown and must serve the region

The vision for transit must be tied to economic development

- Transit should encourage and guide development
- Transit should provide access to jobs
- Transit can attract and retain young professionals

There has been a lack of investment in public transportation in central Ohio

- Central Ohio is not positioned to make future investments in transit
- Community leadership is not successfully positioning the region for transit investment

There has been a lack of innovation in the existing transit system.

Based on these themes an initial set of values was presented to the community and refined into the following five. In particular, these values guided the technical process by providing a framework for the evaluation criteria used to compare potential high capacity transit investments.

MAKE BETTER CONNECTIONS
Extend transit’s reach further.

INVEST IN UNDERSERVED COMMUNITIES
Direct transit investment to specific corridors and neighborhoods.

COORDINATE WITH GROWTH
Encourage focused growth in existing neighborhoods and fast-growing areas.

BUILD ON SUCCESS
Improve existing service.

SUSTAINABILITY
Protect the environment and reduce greenhouse gas emissions.
“Share Your Vision”

IDENTIFICATION OF NEEDS AND OPPORTUNITIES

Concurrent with the development of community values, the Phase 1 community involvement process solicited input on unmet needs and opportunities to enhance transit in the region over the next 35 years. Connections to the following geographic areas (illustrated in Figure 3-1) were most frequently cited as needing new or improved transit service.

SOUTHERN SUBURBS AND EMPLOYMENT CENTERS
Downtown Columbus to southern suburbs and employment centers: Grove City, Groveport, and Rickenbacker

JOHN GLENN COLUMBUS INTERNATIONAL AIRPORT
Primarily between downtown Columbus and the airport

NORTHERN SUBURBS
Dublin, Worthington, Westerville, New Albany, Gahanna, Polaris, and Easton

DOWNTOWN COLUMBUS
High Street and Ohio State University

Where should transit go by 2050 and why?

Stop thinking and talking big—let’s act big—the community is ready for transformative investments.

—Stakeholder
Chapter 3: The Community’s Vision

“Where do you want to go?”

PUBLIC INPUT ON INITIAL TRANSIT IMPROVEMENT OPTIONS

Following Phase 1 outreach, the NextGen team developed a broad list of potential transit improvements, including 26 high capacity transit corridors and supporting investments in bus network enhancements and new service types. Between September and November 2015, the NextGen team asked the community, “Where do you want to go?” at public meetings and community events, stakeholder workshops, and through an online survey that allowed participants to prioritize transit investments and select corridors on an interactive map. Findings from Phase 2 outreach were used in conjunction with the technical findings regarding future population and job growth, among other factors, to focus the NextGen Vision on 13 potential high capacity transit corridors and categories of investments that are most important to the community.

“Make Your Move”

REFINEMENT OF COMMUNITY PREFERENCES

In February and March 2017 the final phase of NextGen outreach was conducted (Phase 3). Results of the technical high capacity transit corridor evaluation were presented along with specific recommendations for future expansion of the bus network, implementation of new neighborhood services, and adoption of smart mobility features consistent with Smart Columbus. The community confirmed that its vision for transit includes investment in high capacity transit, with particularly strong support for its implementation in the North High Street corridor. In addition, there is support for high capacity transit in corridors that may spur and complement focused development in the future, such as connections to John Glenn Columbus International Airport and Dublin. The community envisions transit as a key component in providing access to jobs and supports the expansion of bus service to new destinations and at different times of day to support these connections. The community also recognizes that a successful transit system must include investments in supporting amenities such as a universal payment card, pedestrian accessibility, first/last mile connections (car share, bike share, etc), multi-modal trip planning, passenger waiting areas, and public information to ensure that the system is modern, user friendly, and safe.
For More Information

APPENDIX A
Defining Community Values
October, 2015

APPENDIX B
Community and Stakeholder Outreach: Summary of Phase 1 Findings
October, 2015

APPENDIX C
Community and Stakeholder Outreach: Summary of Phase 2 Findings
February, 2016

APPENDIX D
Community and Stakeholder Outreach: Summary of Phase 3 Findings
July, 2017

PHASE 1 VIDEO
youtu.be/DACad_NngQk

PHASE 2 VIDEO
youtu.be/QznwoK6Pzoc

PHASE 3 VIDEO
youtu.be/gUKf5gCObuE
NEED FOR NEXTGEN
Chapter 4: Need for NextGen

Need for NextGen

In May 2017, COTA implemented a new bus network, the Transit System Redesign (TSR), which transformed its services to provide simpler routes, more direct connections between neighborhoods and job centers, and more frequent and consistent service seven days a week. The TSR focused on creating an optimized bus network within COTA’s available resources that serve the travel patterns that are most important today and in the near future. The TSR provides a foundation of transit service that is easy to grow and improve as new resources become available. NextGen builds upon the TSR by laying out a framework for investment in transit that extends further into the future, ensuring that the transit system evolves to continue support central Ohio as it grows.

Central Ohio Is Growing

The Columbus metro area has become Ohio’s largest city and one of the most dynamic communities in the Midwest; it is the only city in the Midwest to show significant growth between 2000 and 2013 and in 2014 was the 15th fastest growing city in the United States.1 Columbus recently surpassed Indianapolis in population and is now the 14th largest city in the nation.2 Population growth in central Ohio has been consistent for the past several decades, with an increase of approximately 500,000 people between 1980 and 2010. Both the City of Columbus and the surrounding communities have added population and employment.

In addition to growing steadily, the region is preparing for continued growth. insight2050, an initiative led by MORPC, Columbus 2020, and the Urban Land Institute (ULI), projects the seven-county region will grow by up to 1 million people and 300,000 jobs between 2010 and 2050. This rate of growth, which is based on the rate of growth that occurred between 2010 and 2015 in central Ohio, far exceeds that of other cities in Ohio3 and will require the construction of about 300,000 new housing units.

Figure 4-1 Projected Central Ohio Population Growth (7-County insight2050 Region)

— We are on track to being the largest metropolitan region in Ohio —

Source: insight2050

1 “Columbus’ Population Keeps Rising” The Columbus Dispatch, May 22, 2014
2 “Columbus overtakes Indianapolis to become country’s 14th largest city, with several suburbs growing quickly as well.” Columbus Business First, May 25, 2017
3 insight2015 http://getinsight2050.org/
Building on the TSR

The TSR was a fiscally constrained plan. Through the planning and public involvement processes that resulted in the TSR, areas needing access to later, and more frequent service were identified, but not all were included in the TSR due to limited resources. These needs were incorporated into the NextGen Vision.
Chapter 4: Need for NextGen

Trends that Create Opportunities for Transit

Growth in the region will require that more people are moved in a more efficient manner every day. In addition to the sheer increase in the demand for mobility, changing demographics and preferences are furthering the case that transit can play a critical role in meeting needs and shaping development, detailed below:

1. Households are getting smaller. Smaller household size will result in denser development, which supports transit.

2. Poverty rates in central Ohio are increasing. Transit provides low cost transportation and plays a crucial role in connecting those that cannot afford a private automobile to jobs.

3. A fast-growing population in central Ohio is New Americans immigrating to the region. The need for transit among recent immigrants may be greater due to not having access to a private automobile. Providing high quality transit service will help retain these riders, who, once more established, may become interested in auto ownership.

4. In the past few decades, central Ohio’s geographic growth has outpaced its population growth; land use patterns have become less dense and more sprawled, which creates challenges for transit due to increased resources needed to serve fewer people. Premium transit, such as light rail, has the potential to focus development patterns.

5. Attracting and retaining young professionals and new talent is essential to a dynamic, robust economic future. Transit is an amenity that supports urban, walkable, communities that recent graduates are seeking in choosing a place to live.

6. The shared economy is creating new opportunities for transportation services. Options for getting around such as CoGo Bike Share, Car2Go, and transportation network companies (such as Uber and Lyft) can be paired with public transit to extend the reach of transit networks, and overall make it easier to live without a private automobile.

7. Housing and lifestyle preferences are influencing housing choices, especially among Millennials and Baby Boomers. Demand in future years will be for communities that offer mixed uses, are walkable, have smaller unit sizes, and have public transit access. Between 2010 and 2015 about half of all new housing units built in central Ohio were multifamily developments. If this trend continues, communities will be denser and more transit supportive.

8. Between 2010 and 2015 twenty-five square miles of land was developed in central Ohio, 56% of which was outside of urban areas. While future growth may trend toward infill in higher density neighborhoods, traditional suburban development will not cease completely. Communities will require transit service that is flexible enough to operate effectively in lower density areas where long-time residents are aging in place or newcomers have sought more traditional housing. While transit has historically been costly to operate in low density environments, emerging technology platforms for shared rides and on-demand services are changing the possibilities for providing quality and convenient transit service.

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3. According to the U.S. Census Bureau, between 2000 and 2015 the share of Franklin County’s foreign-born population increased from 6.0% to 9.8%. In 2015 this represented 118,574 people.


Transit Boosts Regional Competitiveness

Central Ohio competes with other regions for talent. Many recent graduates and young professionals are choosing their city before they find their job, and they’re often choosing walkable neighborhoods with good transit access, and options for how to get around.

“Millennials are already changing the way transportation works in downtown Columbus, with Car2Go, CoGo and CBUS...it is amazing.” - stakeholder
Chapter 4: Need for NextGen

Forecasts that Support the Need for Transit Investment

Transit service is generally most efficient in areas with high concentrations of people and businesses. When considering both population and employment-based future demand, it becomes clear there will be significant underlying transit demand in central Ohio in the future, as shown in Figure 4-2.

- Downtown Columbus and the areas around Ohio State University are projected to have combined population and employment levels that would support very frequent service in 2050.
- Portions of Dublin, Worthington, Polaris, Westerville, and Easton Town Center are all projected to be able to support very frequent service in 2050.
- Growth nodes in the southern suburbs are less densely clustered, presenting opportunities to explore alternative models for providing cost effective mobility.

While most of the areas projected to have high demand for transit are served by COTA’s existing routes, the levels of both population and employment in the future will likely require more frequent service and longer service spans.

As the region grows, road and highway infrastructure will need to support additional trips, and will likely experience an increased level of congestion, shown in Figure 4-3 and Figure 4-4. Between 2015 and 2050 the mileage of congested roadways in central Ohio is projected to increase by 79%. By 2050, almost all of I-270 will experience moderate congestion, and in some segments, such as between Dublin and Hilliard, there will be severe congestion. With longer commute times, transit options that offer travel time savings will become more attractive and can be an effective investment for relieving congestion as the region grows.

The growing congestion levels also indicate a need to ensure reliable service in the future. For instance, high occupancy vehicle lanes on freeways or bus routes permitted to operate on freeway shoulders during congested times may need to be increased as congestion increases. Likewise, on arterials, the need for priority measures such as bus lanes or Transit Signal Priority, which increases the likelihood that a transit vehicle will not stop at a red light, may be necessary to reduce the impacts of growing congestion. These strategies are discussed in more detail in Chapter 5.

1 Calculated by comparing the number of miles of roadway shown in Figures 4-3 and 4-4 in which the ratio of volume to capacity exceeds 0.81 in 2015 and 2050.
Figure 4-2 Change in Combined Population and Employment Density (2015-2050)

Source: Nelson\Nygaard Consulting Associates adapted from TIGER and MORPC
Chapter 4: Need for NextGen

Figure 4-3 Congestion Levels (2015)

Source: Nelson\Nygaard Consulting Associates adapted from TIGER and MORPC
Figure 4-4 Congestion Levels (2050)

Source: Nelson\Nygaard Consulting Associates adapted from TIGER and MORPC
Chapter 4: Need for NextGen

Development Patterns and Transit Demand

Transit demand is strongly related to development patterns, and in particular, the density of development shapes transit demand. However, there are additional factors that influence the success of transit service and support the development of strong transit markets. Parts of central Ohio, such as downtown Columbus and the Short North already exhibit these factors and support successful transit service. As communities plan for future growth, the 6 Ds of Transit Demand must be considered beyond the addition of people and jobs.

**DESTINATIONS**
Align major destinations along reasonably direct corridors served by frequent transit.

**DIVERSITY**
Provide a rich mix of pedestrian-friendly uses to support street-level activity throughout the day and night.

**DISTANCE**
Provide an interconnected system of pedestrian routes so that people can conveniently access transit.

**DENSITY**
Concentrate higher densities close to frequent transit stops and stations and multimodal nodes.

**DESIGN**
Design high-quality pedestrian friendly spaces that connect people seamlessly to transit.

**DEMAND MANAGEMENT**
Provide attractive alternatives to driving by managing parking, providing incentives not to drive, and/or providing programs to help educate people about driving alternatives.
Beyond Density: Transit Supportive Design

The Sears Holdings headquarters outside of Chicago in Hoffmann Estates, Illinois occupies over 2 million square feet of office space with 6,000 employees on 80 developed acres*. When considering density only, the 75 employees per acre found on this site is sufficient to support frequent transit. However, several aspects of its built form make the Sears headquarters relatively unsupportive of transit service. Trillium Boulevard, Higgins Road, and Beverly Road, the streets that encircle the Sears property have no sidewalks on one or both sides of the street, making an environment that is inconvenient or unsafe for pedestrians wishing to access other parts of the business park or walk from a transit stop to work. As a result, transit vehicles must deviate from major arterials to pick up or drop off passengers, adding operating time and costs. Alternatively, a dedicated route must be developed specifically for these large employment sites, and historically, routes dedicated to single employers underperform.

By comparison, the Arena District in Columbus has 1.8 million square feet of office, retail, and restaurant space plus 800 residential units and the Nationwide Arena in a 120 acre neighborhood of downtown Columbus. Building entrances are accessible directly from sidewalks, the street network allows transit vehicles to access destinations without deviating from major streets, and the diversity of uses creates demand for trips at all times of day. While parking is available, it may not be as convenient as other ways of accessing the district. Despite similar levels of density, the Arena District is much more transit supportive than the Sears headquarters.

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*The property occupied by Sears is 200 acres, much of which is undeveloped. Eighty acres is an estimate of the area covered by buildings and parking lots.
A Holistic Assessment of Needs

The analysis of trends and forecasts in this chapter present a technical basis supporting the need for transit investment in central Ohio. However, NextGen’s identification of needs goes beyond these datasets, coordinating with the planning efforts being conducted in the region, discussed in Chapter 2, and incorporating the public input gathered through the engagement process described in Chapter 3. Together, data, plans, and public input form the foundation for the robust transit vision that emerged through NextGen.

For More Information

APPENDIX E

Needs Assessment

October, 2015
NEXTGEN STRATEGIES
NextGen Strategies

The NextGen Vision includes three components that will improve mobility and help the region accommodate growth.

**HIGH CAPACITY TRANSIT**
... which moves more people, faster, in less physical space, attracts new development and focuses growth.

**SMART MOBILITY OPTIONS**
... such as self-driving vehicles and smart apps, which makes planning and paying for transportation services and job access easier than ever.

**ENHANCED BUS SERVICE**
... that runs more frequently, to more places, ensuring that residents can access jobs and employers can attract employees because transportation is accessible 24-hours a day.

**STRATEGY 1**
DEVELOP HIGH CAPACITY TRANSIT SERVICES
PAGES 63–69

**STRATEGY 2**
LEVERAGE SMART TECHNOLOGIES
PAGES 70–75

**STRATEGY 3**
MAKE TRANSIT EASIER TO UNDERSTAND AND USE

**STRATEGY 4**
IMPROVE EXISTING SERVICES

**STRATEGY 5**
EXPAND SERVICE TO NEW AREAS

**STRATEGY 6**
EXPAND FREEWAY BASED EXPRESS SERVICES
PAGES 76–85
HIGH CAPACITY TRANSIT

Strategy 1: Develop high capacity transit services such as bus rapid transit (BRT), light rail, streetcar, or commuter rail

Larger infrastructure projects such as light rail, commuter rail, and dedicated BRT corridors will be longer term projects requiring significant effort to complete environmental clearances and detailed engineering prior to construction and operation.

Why Invest in High Capacity Transit?

With central Ohio predicted to grow by up to 1 million people by 2050, the region will need to support a significantly increased level of travel demand. A natural outcome of increased demand will be increased congestion, which has been predicted by MORPC’s regional model. Insight2050 examined four different growth scenarios, all of which assumed the same amount of growth in the region, but different levels of density. Compared to past growth trends, scenarios with increased density are predicted to result in reduced costs at the government and household level, and reduced impact on natural resources. In essence, increasing density is the most cost effective and sustainable way to accommodate growth. High capacity transit plays a key role in attracting and moving people who live in densely developed areas.

While improvements to a local bus network can increase ridership, local bus service does not lead to transformative land use and economic development changes. Buses will also continue to get slower and less competitive as traffic congestion increases.

In contrast, high capacity transit has spurred development in concentrated corridors across the U.S. This makes the economic benefits for outweigh the investment costs. NextGen has taken the first steps to identify corridors in which the community envisions high capacity transit, which will facilitate denser development as the region grows.
### Types of High Capacity Transit

<table>
<thead>
<tr>
<th>Type of High Capacity Transit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Light Rail</strong></td>
<td>Light rail service provides urban rail service that operates in a combination of exclusive rights-of-way and mixed traffic. It is designed to serve high volume corridors at moderate speeds and has spurred development in corridors across the nation.</td>
</tr>
<tr>
<td><strong>Streetcar</strong></td>
<td>Streetcar service is a high capacity rail mode that operates in a combination of mixed traffic and exclusive rights-of-way. Streetcars operate at moderate speeds for shorter distances and have had success generating economic development benefits nationally.</td>
</tr>
<tr>
<td><strong>Commuter Rail</strong></td>
<td>Commuter rail services provide fast rail service in longer, high-volume corridors. Service operates on exclusive rights-of-way, often on rail lines that are owned by freight railroads.</td>
</tr>
<tr>
<td><strong>Bus Rapid Transit: Exclusive Right-of-Way</strong></td>
<td>Bus Rapid Transit (BRT) service that operates in exclusive rights-of-way offers riders the same benefits and amenities as BRT operating in mixed traffic but with faster travel times and more distinctive vehicles and stations.</td>
</tr>
<tr>
<td><strong>Bus Rapid Transit: Mixed Traffic</strong></td>
<td>Bus Rapid Transit (BRT) service that operates in mixed traffic offers riders increased frequency plus other service improvements such as increased speed, reliability and comfort through distinctive vehicles, off-board fare payment, traffic signal priority, and station amenities.</td>
</tr>
</tbody>
</table>
### Types of High Capacity Transit (continued)

<table>
<thead>
<tr>
<th>VEHICLE/INFRASTRUCTURE</th>
<th>TYPICAL LINE LENGTH</th>
<th>SPEED &amp; RELIABILITY</th>
<th>CAPACITY</th>
<th>ECONOMIC DEVELOPMENT IMPACTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Light Rail</strong></td>
<td>Existing Street ROW and/or Exclusive ROW</td>
<td>10–20 Miles</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Streetcar</strong></td>
<td>Existing Street ROW and/or Exclusive ROW</td>
<td>2–5 Miles</td>
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<tr>
<td><strong>Commuter Rail</strong></td>
<td>Exclusive ROW</td>
<td>20–80 Miles</td>
<td></td>
<td></td>
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<tr>
<td><strong>Bus Rapid Transit: Exclusive Right-of-Way</strong></td>
<td>Exclusive ROW</td>
<td>8–20 Miles</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bus Rapid Transit: Mixed Traffic</strong></td>
<td>Existing Street ROW</td>
<td>8–20 Miles</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A More Detailed Explanation of Bus Rapid Transit

Bus rapid transit (BRT) is a form of high capacity transit that combines bus vehicles with operating elements of rail to create a similar passenger experience at a lower capital cost. Compared to regular bus service, BRT utilizes features such as dedicated lanes, signal priority at intersections, wider stop spacing, and off-board fare payment to provide travel time savings to passengers. These features, similar to rail service, can reduce travel times by 20-30% over existing bus service. In addition, branding, specialized vehicles, and enhanced station amenities such as level boarding platforms and real-time arrival information distinguish BRT from traditional bus service. Patrons can rely on an enhanced level of service along a dedicated high capacity transit corridor, regardless of whether the technology is rail or BRT.

While both BRT and rail have been shown to engender economic development along transit corridors, there is more evidence of success among rail projects. Those corridors that have experienced greater growth as a result of BRT implementation have included the highest level of amenities, making the service as similar to rail as possible. For instance, the Healthline in Cleveland, a BRT with the highest levels of amenities, has supported more than $4 billion in development along its alignment.

COTA’s CMAX Cleveland Avenue BRT, which will open in 2018, operates almost exclusively in mixed-traffic and does not include the full complement of BRT capital investments. CMAX achieves its travel time primarily by wider stop spacing.

In line with the community’s vision, proposed BRT corridors for NextGen have been costed and evaluated assuming that they will include all enhancements and amenities, ensuring that they accomplish the community’s goal of coordinating transit with growth.
Chapter 5: NextGen Strategies

Process for Developing the High Capacity Transit Corridor Vision

The high capacity transit corridors that make up the NextGen Vision were selected and refined through a combination of technical evaluation and community input. Evaluation criteria for the evaluation process were developed based on the goals that the community set for transit during Phase 1 community outreach. Initial corridors were selected from a broad list through public participation in Phase 2, including an interactive online survey in which respondents could see corridors on a map and vote for their preferred options. After rigorous technical evaluation of the corridors which assessed the benefits and costs of each corridor, the community was asked to weigh in on the results, ensuring that the final set of corridors reflects a combination of analytical and community support.

Figure 5-1 on the next page shows the network of NextGen Vision high capacity transit corridors. The modes shown in the map are those that NextGen’s high level analysis suggested could be viable. NextGen identified modes due to the need to understand order of magnitude costs, which can vary between modes. Figure 5-1 labels each corridor with a mode in order to communicate the results of NextGen’s high level analysis as well as the assumptions that went into developing the projected cost of the NextGen Vision (see Chapter 6). The mode for these corridors has not been finalized or determined. A more detailed project development process, a required step to obtain federal funding which takes a transportation improvement from concept through construction, must finalize the selection of mode.

The fourteen high capacity transit corridors were developed using the most current MORPC forecasts for projected land uses in 2040 and 2050. Land use and economic development trends are not static—and plans updated 10 years from now may look very different from today’s. As the region grows and redevelops, additional corridors or areas may be able to support high capacity transit. As communities in central Ohio grow and change, COTA is committed to updating the NextGen Vision to reflect new opportunities.
Chapter 5: NextGen Strategies

Proposed NextGen High Capacity Transit Network

Figure 5-1 Conceptual NextGen High Capacity Transit Corridors

Potential High Capacity Transit Corridors

All alignments are conceptual. The final alignments and modes will be determined during the project development process.

- **Bus Rapid Transit (BRT)**
- **Commuter Rail**
- **Light Rail**
- **Streetcar**
- **In Rail Right of Way**

Note: Additional corridors may be developed as communities grow and update plans to support high capacity transit.
Where do the Potential High Capacity Transit Corridors Go?

To reiterate, the mode for these corridors has not been finalized or determined. A project development process must finalize the selection of mode. Given that context, the assumed opportunities for each corridor are listed below.

**LIGHT RAIL**
Three potential light rail corridors (B, I, and L) have been identified where transit demand will be the highest and where there is the greatest potential for new development. Other corridors may in the future also grow into light rail-supportive areas, but at this juncture, these are the corridors most likely to support light rail.

**BUS RAPID TRANSIT**
All of the BRT lines are envisioned to feature “full BRT” elements such as dedicated lanes, off-board fare payment, unique vehicles, station amenities, and other priority treatments. Stop spacing is projected to range between one third and a half of a mile, but varies based on surrounding or projected land uses.

Nine potential BRT corridors have been identified where transit demand currently exists or where future development will support the investment.

**STREETCAR**
Streetcar is envisioned as providing urban circulator service on short, center-city lines with frequent stops. Track and platform infrastructure is adapted to modern streetcars that feature low floors and wide doors for easy boarding, as well as other passenger amenities. The streetcars operate primarily in mixed flow at low speeds.

One potential streetcar corridor (Corridor C) has been identified between Franklinton and Columbus State Community College.

**COMMUTER RAIL**
Central Ohio has multiple existing rail lines that could potentially support commuter rail. However, most of these rail lines have tracks that would be unusable or highly limited for commuter service due to very high volumes of freight traffic.

For this reason, only one commuter rail corridor is proposed along lines where there is limited freight activity, the Newark Line (corridor M), which connects downtown Columbus with the City of Newark in Licking County.
New technology applications have the potential to revolutionize the transit service delivery industry. Smart Columbus is in the process of testing several of these concepts in partnership with COTA. COTA should build upon these opportunities and consider several strategies that improve coverage and provide targeted services at a much lower cost than traditional transit service.

Emerging mobility services typically involve partnerships between a transit agency and either service or technology providers. There is no one model to implement emerging mobility services; pilot projects are underway throughout the United States to roll out this technology. Multiple transit agencies and municipalities, including Valley Transit Authority (VTA) in San Jose, CA and the City of Alamonte Springs, FL have examined the feasibility of in-house operated services with custom-designed software. Via is providing Capital Metro in Austin, Texas with the software to operate on-demand service in a defined zone. Multiple transit agencies are working with partners such as Uber, Lyft, and traditional taxi companies to provide emerging mobility services. Automakers such as Ford are partnering with cities to provide on-demand ridesharing.

Propose autonomous vehicle deployment to address first/last mile challenges from Easton Transit Center to Easton-area employers.

Enhance traveler information, broadband connectivity, and build smart intersections along the CMAX Bus Rapid Transit Corridor from Polaris to Downtown.

Provide real-time transit routing and trip planning information.

Implement a smart pass system will enable all residents to be able to access all the transportation options in our city with a smartphone or pass.

Current Enhanced Mobility Strategies Pursued Through Smart Columbus

Service- and information-based strategies are being developed by Smart Columbus. Smart Columbus will:
Strategy 2: Leverage smart technologies

Traditional buses, such as 35 or 40’ buses are the mainstay of the COTA fleet. They are designed to provide capacity along arterials, but are much less suited to providing neighborhood access. Alternative methods to improve access to transit should be considered.

One of the greatest challenges faced by transit agencies and customers is making the connection between the starting point of the trip and the transit stop (“first mile”), or between the transit stop and the ending point of their trip (“last mile”). In some cases, passengers have a simple walk of just a few blocks, but in many other cases, fixed-route service may end too far from a destination to walk or at a point where a lack of pedestrian infrastructure makes it too difficult to walk. There are a variety of approaches available to address the “first mile/last mile” challenge, and the best approach is likely to be a combination of public and private solutions.

In some jurisdictions, transit agencies play a significant role in ensuring the first mile/last mile connection is met, providing services specifically tailored to meet this need. Another important type of connection that is increasingly being provided by cities is bike share, which central Ohio has with CoGo. The private sector offers additional strategies, including transportation network companies (TNCs) such as Uber and Lyft and car-sharing companies (such as Car2Go).

2.1 Late Night/Early Morning (Owl) Services

Compared to many of its peers, COTA’s span of service is good, with only a 4-5 hour gap in service between 12:30 a.m. and 5:00 a.m. However, there is still a demand for service, particularly from service workers, during the late night and early morning time. Typically, it is not cost-effective to operate regular buses due to reduced demand levels. However, a partnership with TNCs or taxis in which passengers pay a flat fee and the remaining cost of the trip is subsidized by a public agency may be a cost-effective alternative. This is called a user-side subsidy.

A public-private partnership should be considered to provide a subsidy for trips taken using a TNC or taxi during late night and early morning times when COTA services are not operating. During this time, trips on TNCs or taxis with a start and end point within a defined distance (1/2 mile or 1 mile) from a frequent (every 15 minutes) COTA bus line would be eligible for a subsidy. COTA’s high frequency service network covers almost all of the denser employment areas as well as the highest need neighborhoods throughout the region.
2.2 Zone Based Services

Suburban communities have a need for mobility, but in many cases, the street network and the population and employment densities make operating traditional transit service cost uncompetitive.

A public-private partnership with TNCs or taxis should be considered to provide subsidies to trips taken using TNCs or taxis within defined zones. An example of a defined zone would be a suburban municipality, such as Westerville, Gahanna, or Grove City. Trips within the zone, as well as trips between that zone and a COTA bus stop would be subsidized.

2.3 Flexible Job Access Lines

New Albany and Groveport/Rickenbacker have been identified repeatedly as areas that have jobs, but also as areas where access to jobs for those without cars is difficult. Both locations are currently served by COTA bus routes, and additional commuter service and local services have been recommended for both of these locations. SMART Ride in New Albany and GREAT in Groveport/Rickenbacker are existing scheduled shuttle services that provide first/last mile services in each respective business park.

Given the size of the job market, and the extent of where employees are coming from, the commuter and local services to major suburban job markets should be expanded beyond traditional bus service. Innovative services can increase the number of employees conveniently able to reach job sites.

In order to maximize job access, a public-private partnership with TNCs or taxis should be considered to provide user-side subsidy to passengers using TNCs or taxis to make connections between select areas or neighborhoods and the employment sites at New Albany and Groveport/Rickenbacker. Alternatively, agency-operated services such as Via could be considered to serve this need. Examples of neighborhoods that could be selected for this subsidy may include Ardmore/Linwood, Linden, South Columbus, or the Hilltop area. A requirement for this type of service would be the need to share space in a vehicle with other passengers.

Case Study: Direct Connect

Pinellas Suncoast Transit Authority wanted a cost-effective first/last mile solution. Regular fixed-route bus services had been in heavily suburban areas had been unproductive. A partnership was developed with Lyft, Uber, or Taxi rides that subsidized trips that begin/end at designated bus stops in 8 county-wide zones. PSTA pays up to $5 discount - Riders pay an average of $1. Patrons can book through app or use Taxi telephone dispatch.
Figure 5-2 Example of Zone-Based Enhanced Mobility Services
2.4 Autonomous Vehicles

Significant planning and testing efforts are currently underway to introduce autonomous vehicles (AV) as a mobility option. Uber is currently testing AVs in Pittsburgh, and Contra Costa Transportation Authority in the Bay Area is slated to start testing agency-operated autonomous shuttles as early as 2017. Locally, Smart Columbus plans to test AV circulators in Easton Town Center.

AVs could dramatically change how we move between and around cities and towns. However, while there is much speculation on when and what their impacts will be, there is little agreement.

The NextGen Vision recognizes that AVs will very likely become integrated with future transit service and infrastructure. In particular, fully autonomous vehicles could share dedicated travel lanes with BRT and emergency vehicles. Neighborhood and regional transit centers could serve as the connecting points between localized, autonomous circulation and the regional mass transit system. Recommendations will continue to be responsive to changes in the industry as these vehicles make their way onto our roads.

Strategy 3: Make transit easier to understand and use

3.1 Improve passenger amenities at stations, stops, and vehicles

Major components of the transit user experience include waiting at stops and stations and riding in transit vehicles – sometimes for long periods of time. Improvements in station and vehicle amenities can make transit more comfortable and attract more riders.

An expanded program to improve amenities at targeted stops and stations would reach the vast majority of riders. COTA currently has design guidelines that define a hierarchy of stops that are prioritized for shelters. These design guidelines could be expanded to include benches, lighting, trash cans, real-time signage, and more. Design guidelines could be developed based on stop purpose and volumes, that define the types of facilities and amenities that could be provided at each stop, barring physical limitations at any site. Bus stop capital facilities require close coordination between the transit provider, local municipalities, and developers to ensure ongoing maintenance and ADA accessibility.

Another area to improve the passenger experience is to provide on-bus Wi-Fi. COTA has recently initiated this process. This effort may be coordinated with the Smart Columbus’s efforts to create local hotspots in select neighborhoods.

The Smart Columbus effort is looking to include neighborhood or mobility hubs at key locations, such as the Linden Transit Center and Northland Park-and-Ride. A smart mobility hub is a location where transit, bike share services such as CoGo, and car share services such as Car2Go seamlessly interact. Patrons can utilize the shared bike or shared car services to get to where they need to go more quickly, and reduce the amount of walking time accessing transit. This concept may be expanded throughout central Ohio.
3.2 Provide information on available services that is attractive, easy to obtain, and easy to understand

Different people access information in different ways. In recognition of this, additional methods to disseminate information to existing and potential riders should be developed. COTA is in the process of developing several of these improvements now, including the following:

- Real-time information at major stations, stops, and park-and-ride lots
- Wayfinding and local information signage at major stops

3.3 Adopt new technologies such as mobile ticketing, electronic fare payment, and real-time information that makes transit easier to use

Fare payment technology is improving rapidly and will likely continue to do so. New technologies can respond to customer desires to have more payment options, and remove the need to carry cash or specialized transit passes. Moreover, it can remove one of the traditional barriers for new patrons to take transit – fare payment. To take advantage of evolving payment technologies, COTA has already begun to aggressively pursue improvements that would make fare payment much easier. Improvements include:

- Stored value tickets to make fare payment easier for occasional riders
- Open payment systems that allow use of credit card, debit card, and other third party fare payment systems
- Mobile ticketing to provide another payment option and make fare payment easier
- Off-board ticketing machines that accept credit and debit cards
ENHANCED BUS SERVICE OPTIONS

By 2050, the high capacity network of fast, frequent, and reliable service will form the backbone of the regional transportation network. Supporting improvements to the bus network complement the investments in high capacity transit. Three strategies are outlined that significantly improve transit in central Ohio.

Strategy 3: Improve existing services

4.1 Increase the number of high frequency service lines

Fourteen different lines and the downtown CBUS circulator operate as high frequency lines, which are defined by having all-day frequencies of 15 minutes or better. Most riders consider service that operates every 10 minutes or more frequently as very convenient and service that operates between every 10 minutes and every 15 minutes as relatively convenient.

Five lines should be upgraded to high-frequency service line status, including:

- Line 2L between Downtown Columbus, High Street, and Polaris
- Line 3 between Upper Arlington and Grove City
- Line 24 between Easton Town Center and Refugee Road
- Line 31 between Lennox and Cleveland Avenue
- Line 33 between High Street and City of Dublin

The existing high frequency Line 34 Morse and the proposed high frequency Line 33 Henderson should be combined into one line to provide a seamless high frequency east-west connection between Dublin and Easton Town Center.

4.2 Provide more frequent service throughout the service network

Eight different COTA lines currently operate service that has frequency between 30 and 60 minutes. Service that operates more than every 30 minutes is likely to be too infrequent to attract travelers who have other opportunities to travel, such as driving.

All COTA lines should operate at a minimum, every 30 minutes throughout the day on weekdays, Saturdays, and Sundays. The eight lines that will require frequency improvements to meet this threshold are:

- Line 5 between Wilson Road and Renner Road
- Line 9 W. Mound/Brentnell
- Line 11 Bryden/Maize
- Line 21 Hilliard/Rome
- Line 24 between Refugee Road and Groveport/Rickenbacker
- Line 25 Brice
- Line 32 between Kingsdale Shopping Center and Hilliard
- Line 35 Dublin/Granville
4.3 Operate longer hours weekdays and weekends

On weekdays, almost all lines start before 5 a.m. and end after 12:30 a.m. On Saturdays, a similar pattern holds, and on Sundays, service typically is operated between 5:30 a.m. and 11 p.m.

Three lines end service before other lines. It is recommended these three lines be upgraded to have the same evening span of service, and operate later seven days a week, including:

- Line 11 Bryden/Maize
- Line 21 Hilliard/Rome
- Line 25 Brice

Figure 5-3 shows recommended minimum weekday span of service and frequency guidelines for local bus service, frequent service routes, and commuter routes. The figure also includes guidelines for future high capacity transit modes, which are envisioned by NextGen.

**Figure 5-3 Minimum Weekday Span and Frequencies**

<table>
<thead>
<tr>
<th>SERVICE TYPE</th>
<th>SPAN OF SERVICE</th>
<th>PEAK FREQUENCY</th>
<th>MIDDAY FREQUENCY</th>
<th>EVENING FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Capacity Transit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light Rail</td>
<td>4:45 a.m. – 1 a.m.</td>
<td>10 mins</td>
<td>15 mins</td>
<td>15 mins</td>
</tr>
<tr>
<td>Bus Rapid Transit</td>
<td>4:45 a.m. – 1 a.m.</td>
<td>10 mins</td>
<td>15 mins</td>
<td>15 mins</td>
</tr>
<tr>
<td>Streetcar</td>
<td>6 a.m. – 1 a.m.</td>
<td>15 mins</td>
<td>15 mins</td>
<td>20 mins</td>
</tr>
<tr>
<td>Commuter Rail</td>
<td>5:30 a.m. – 9:30 a.m.</td>
<td>60 mins</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Commenet Rail</td>
<td>3:00 a.m. – 6:30 p.m.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular Bus Service</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequently Service Network</td>
<td>4:45 a.m. – 1 a.m.</td>
<td>15 mins</td>
<td>15 mins</td>
<td>15 mins</td>
</tr>
<tr>
<td>Local Bus Network</td>
<td>4:45 a.m. – 1 a.m.</td>
<td>30 mins</td>
<td>30 mins</td>
<td>30 mins</td>
</tr>
<tr>
<td>Commuter Express</td>
<td>6:30 a.m. – 9:30 a.m.</td>
<td>5 trips (a.m.)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>3:00 a.m. – 6:30 a.m.</td>
<td>6 trips (p.m.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.4 Make service faster

The average speed of most local bus service is between 12 and 15 miles per hour. Running times are influenced by multiple factors, including ridership levels, fare payment methods, congestion, the number of traffic signals, and stop spacing. Reducing travel times can attract riders, by making service more convenient. Faster running times can also lead to reduced operating costs.

Several different strategies should be considered, including implementing limited stop service on some of the highest ridership corridors and examining opportunities for stop consolidation.

Line 10, which connects the Lincoln Village and Reynoldsburg areas via Broad Street, currently requires almost 90 minutes to travel approximately 20 miles. Stop spacing is approximately five stops a mile. On weekdays, during high ridership times, a limited stop overlay on Line 10 should be added, with bus stop spacing of approximately one mile. This will reduce travel times between Lincoln Village or Reynoldsburg and Downtown Columbus by up to 20%.

A similar strategy may be employed on all lines through stop consolidation. Transit stops are customers’ access points for transit services and, as such, should be conveniently located. However, they are also one of the biggest reasons that transit service is slower than automobile trips. Most riders want service that balances convenience and speed, and the number and location of stops are key components in determining that balance.

However, as success with BRT projects around the country has shown, most passengers prefer a greater emphasis on faster service than on shorter walks. To achieve a better balance, stops can be consolidated. This can also provide significant travel time savings—on average, it takes a bus about 20 seconds to slow down, stop and pick up a passenger, and accelerate back up to speed. Thus, a consolidation from nine stops per mile to six can save one minute per mile, or five minutes on a five-mile trip. Fewer stops also means a more comfortable ride, as consolidation reduces stop-and-go operation.

The bottom alignment has 50% fewer stops than the top, yet covers almost the same area within an acceptable walk to a bus stop (5 minute walk). This illustrates the opportunity to maintain coverage to customers and improve speed and reliability through stop consolidation or limited-stop overlay services.
4.5 Implement transit priority

Transit service is most attractive when it is faster than driving, or when the time differences are reasonable. To make transit faster, it can be given priority over regular traffic. This can be done through the use of one or more of the following enhancements:

- **Exclusive bus lanes**, which can be developed in a number ways, including in medians and in curb lanes.

- **Peak period-only bus lanes**, which are usually in lieu of parking, but sometimes implemented through the use of a regular traffic lane. This currently exists on High Street in downtown Columbus.

- **Queue jump lanes**, which typically substitute a short stretch of parking for a curbside bus lane that allows buses to jump to the front of the queue at bus stops or traffic signals.

- **Transit signal priority (TSP)** that extends green signals or provides an early green signal for approaching buses, which allows passing through the intersection before the light turns red or shortens the wait time at a red light. The CMAX BRT will have TSP along the Cleveland Avenue corridor and Smart Columbus is upgrading additional traffic signals to be able to accommodate TSP.

- The use of **freeway shoulders** by express buses to bypass congestion. COTA currently operates on freeway shoulders in during congested times on two interstate corridors, I-670 and I-70.
Strategy 5: Expand service to new areas

Traditionally, the COTA route network has focused on downtown Columbus. Over the past 50 years, the majority of the regional residential and employment growth in central Ohio has been in suburban areas, which are not as well served by transit service. The new TSR network took an initial step in changing the largely radial route network to serve new trip patterns, but additional expansion of service is necessary to better connect people to jobs and services.

5.1 Extend high frequency service lines to suburban communities

Most of the newer suburban communities that have become residential, retail, and employment centers are not served by high quality bus service. Five existing high frequency lines should be extended to expand the destinations served by high quality service, including:

- CMAX Cleveland Ave: between SR 161 and Polaris Parkway
- Line 2 E. Main: between Hamilton Road and Reynoldsburg
- Line 5 W. Fifth: between Frist Community Village and Wilson Road on the west and to Alum Creek on the east
- Line 10 E. Broad: between Hamilton Road and Reynoldsburg
- Line 1 Kenny: between North Broadway and Dublin Bridge Street District

5.2 Create new lines to connect to growing areas

Much of the residential, retail, and employment growth has centered along the “Northern Tier” suburbs of Dublin, Worthington, Westerville, and New Albany. Connections between these suburbs and the remainder of the COTA service area are limited. In addition, several roadways exist with the density to support fixed-route service, but do not have service today. Five new all-day lines are recommended to better connect these areas to the existing network and improve access to residential and employment opportunities, including:

- Line 101: Dublin Post Road to Westerville
- Line 102: Hollywood Casino to Dublin Bridge Street District
- Line 103: Dublin Bridge Street District to New Albany via SR 161
- Line 104: Easton Town Center to New Albany
5.3 Provide better service to major suburban employment sites

One of the consistent themes heard during public outreach was to enhance connections to regional job centers. Two areas, New Albany and Groveport/Rickenbacker, have added thousands of jobs in the past five years and are expected to add more. COTA serves these locations, but the level of growth that has and will occur warrants more service. In addition to the Northern Tier suburbs, Grove City is rapidly expanding, as are the west suburbs, such as Hilliard. Multiple new lines or extensions to existing lines should be considered to improve job access, including:

- Line 8 S. High: Extend from South Columbus to Grove City, serving both Walmart and the new Mount Carmel Hospital
- Line 21 Hilliard Rome Rd: Extend from the existing terminus at Tuttle Crossing to the Dublin Bridge Street District
- Line 25 Brice: Extend from Refugee Road to Canal/Winchester and Groveport/Rickenbacker

These line extensions supplement the new lines described previously, and complement proposed commuter services discussed below.
Figure 5-4  Expand Service to New Areas

**Expand Service to New Areas**

**Extend High Frequency Routes to Suburban Communities**
- 2: High frequency service extended to Reynoldsburg
- 5: High frequency service extended to Wilson Road on the west and Alum Creek on the east
- 10: High frequency service extended to Reynoldsburg

**Create routes to connect to growing areas**
- 101: Dublin Post Road to Westerville
- 102: Hollywood Casino to Dublin Bridge Street District
- 103: Dublin Bridge Street District to New Albany via SR 161
- 104: Easton Town Center to New Albany

**Provide better service to major suburban employment sites**
- 8: Extend from South Columbus to Grove City
- 25: Extend to Groveport/Rickenbacker

**Bus Routes**
- Proposed: 1 Dr
  - Frequent (15 Min or Better)
  - Standard (30 Min or Better)
Figure 5-5 Proposed Local Bus Expansion

Proposed NextGen Vision
- Suburban Job Center Circulator

Bus Routes
- Proposed: TSR
- Frequent (15 Min or Better)
- Standard (30 Min or Better)
Strategy 6: Expand freeway based express services

The existing COTA bus network serves an area covering approximately 550 square miles. The travel distances from the edges of the service area to any other part of the region result in longer travel times. Much of the population and employment growth has been in the areas outside of the I-270 perimeter. In order to provide a more competitive option with driving, local service should be supplemented with faster commuter express services.

6.1 Expand suburban service to major suburban employment sites

Suburban job centers are projected to be major drivers of the regional economy. New Albany and Groveport/Rickenbacker continue to add jobs, and communities such as Dublin are rezoning entire areas, such as the Bridge Street District, to make it more attractive to walk, bike, and use transit. Travel times to these locations are long and in many cases uncompetitive for riders who have access to other modes of transportation. Commuter express bus service, that uses priority treatments such as bus on shoulder, could increase the attractiveness of using transit to suburban job sites. Six new commuter express lines are described below, most of which would require additional park-and-ride capacity to support the corresponding bus service, as shown in Figure 5-6:

- Line 204: All day service between Downtown Columbus and Groveport/Rickenbacker
- Line 205: Peak only service between Dublin and Polaris
- Line 206: Peak only service between Dublin and Easton Town Center
- Line 207: Peak only service between Polaris and Easton Town Center
- Line 208: Peak only service between Easton Town Center and New Albany
- Line 209: Peak only service between Lincoln Village and Groveport/Rickenbacker

6.2 Operate all day freeway based express bus service

Several locations in the central Ohio region may be considered all-day destinations, with large numbers of trips occurring throughout the day. Two of the largest are OSU and downtown Columbus. Both Dublin and Easton Town Center are destinations with a mix of residential, office, retail, and hotels that have grown dramatically over the past decade and have plans for additional growth. Neither Dublin nor Easton Town Center is connected directly to OSU or downtown Columbus with fast, high quality transit. Three all day, freeway-based connections that provide fast trips between these destinations should be developed, as shown in Figure 5-6:

- Line 201: All-day service between Dublin and Downtown Columbus
- Line 202: All-day service between Dublin and OSU
- Line 203: All day service between Easton Town Center and Downtown Columbus

6.3 Improve park-and-ride opportunities

COTA currently has both leased park-and-ride space as well as dedicated facilities. In order to support freeway-based express service, additional park-and-ride space is necessary. In particular, the all-day express lines need to have sufficient parking capacity to accommodate potential demand. Regional park-and-rides should be considered in Easton Town Center and Dublin.
Figure 5-6 Proposed New Commuter Service
NextGen Vision 2050

In summary, three major components comprise the NextGen Vision: implementing high capacity transit, supplementing existing services with smart mobility options, and improving the existing bus network, shown in Figure 5-7. Together, the three components form a network that provides coverage throughout the region, enhances mobility, serves more people, and helps achieve the goals that were set out to accommodate growth.

The improvements in NextGen represent a roadmap for transit improvements over the next 35 years. Based on unforeseen development or economic changes, not all of the improvements shown in NextGen may occur as review and modifications of the concepts are incorporated over time. Potential phasing, prioritization, and funding options are discussed in Chapter 6.

For More Information

**APPENDIX F**
Tier 1 Screening Methodology and Results
December, 2015

**APPENDIX G**
Modal Analysis Methodology and Results
January, 2016

**APPENDIX H**
Tier 2 Evaluation Methodology and Results
February, 2017

**APPENDIX I**
STOPS Forecasting Methodology Report
July, 2017
Fixed-route service supported by emerging mobility enhancements
PHASING AND FUNDING OPTIONS
Chapter 6: Phasing and Funding Options

Phasing Options

The recently implemented Transit System Redesign (TSR) dramatically changed COTA’s service, and improved access and convenience for thousands of residents. The NextGen Vision builds upon this to further enhance mobility and bring more residents and jobs within reach of high quality transit service. All improvements listed are likely to require funding above and beyond current levels of funding for transit in central Ohio. The NextGen Vision was developed without defined funding sources or budget constrains in order to create a vision that is tailored to the aspirations and needs of the region.

The NextGen Vision has both short- and long-term components. In the short-term, between now and 2025, recommendations focus on needs and improvements that will address today’s travel patterns and land use. Recommendations for the short-term also include many of the elements that the fiscally constrained TSR plan could not accommodate. Between now and 2025 the existing transit network should be enhanced and extended, and high capacity transit should be implemented in a corridor that can support it today. Given the high probability that Federal funding will be sought for the first high capacity transit corridor, selection of that corridor should be informed by its ability to score well in the federal planning process.

In the longer term, the primary emphasis of the recommendations transitions from improving the existing network to upgrading multiple corridors to high capacity transit. Creating an extended network of high capacity transit corridors will require assistance from partnering agencies and municipalities, as zoning, land use, and streetscape elements will need to be adjusted. The path that central Ohio embarks upon in accommodating hundreds of thousands of new residents and jobs will have a direct effect on the viability of many potential high capacity transit corridors.

The NextGen Vision supports local transformative land use changes in synergy with transformative transit service. Communities that focus growth around proposed corridors could have new travel options available to them that improve economic vitality, mobility, and tax revenue streams.
How Can Municipalities Support High Capacity Transit?

MULTI-MODAL ACCESS TO TRANSIT

Every transit trip starts and ends with a trip by another mode. Most transit passengers are pedestrians first, others access transit by bike, and others park a car or are dropped off at a transit stop. Providing safe, convenient, and comfortable access to transit stops and stations is fundamental to serving existing transit customers and attracting new riders. Seamless and integrated pedestrian, bicycle, drop-off, and parking infrastructure supports all forms of multimodal trips, whether it’s biking to transit, walking to car-share, or driving to a park-and-ride facility to carpool.

COMPLETE STREETS

Complete Streets are streets that are designed to accommodate all modes and users. In addition supporting access to transit with bicycle and pedestrian infrastructure, complete streets support the safe and efficient operation of transit with elements such as high quality bus stops and passenger facilities and transit priority treatments.

TRANSIT SUPPORTIVE DEVELOPMENT

Transit demand relates strongly to development patterns and, in particular, development density. In dense areas where more residents and employees are accommodated in smaller geographic footprint, transit can reach more people. Combined with a connected pedestrian environment, transit can become very convenient and well used.

Transit-supportive development is land development located near transit stations or stops that includes a mixture of housing, office, retail, and other amenities integrated into a walkable neighborhood. Transit supportive development leverages the access transit provides to regional destinations and focuses development in close proximity to those places.

The most effective transit supportive development is located less than a half-mile (roughly 10 minute) walk from a transit stop or station. The characteristics of transit supportive development are represented in the graphic below. Putting these principles into practice can create transit-supportive communities that integrate transportation and development. Transit supportive development features vibrant streetscapes, pedestrian-oriented buildings, and land use characteristics that make it convenient and safe to walk, bike, and use public transit.

Eight Principles for Transit Supportive Development
Credit: Institute for Transportation & Development Policy (ITDP)
Phased Implementation Timeline

**TODAY** to 2025
- Implement one high capacity transit corridor
- Operate high frequency network until 9 p.m.
- Add capacity to routes with crowding
- Upgrade three routes to high-frequency route status
- Implement limited stop service on East and West Broad
- Add two commuter bus routes to regional job centers and two local bus routes
- Add two additional local bus routes
- Expand number of dedicated bus lanes
- Upgrade user technology, including mobile fare payment and wifi
- Implement emerging mobility pilot programs, including autonomous vehicles, first/last mile solutions, and night owl service

**Est. Additional Capital Cost**: $331M – $364M
**Est. Additional Annual Operating**: $26M – $29M

**2025** to 2040
- Implement three high capacity transit corridors
- Upgrade 4 routes to high frequency service
- Add 3 new commuter routes to regional job centers, and one new local route
- Operate all local service at least every 30-minutes all-day
- Expand smart mobility programs to more job centers.

**Est. Additional Capital Cost**: $882M – $967M
**Est. Additional Annual Operating**: $34M – $38M

**2040** to 2050
- Implement seven high capacity transit corridors
- Upgrade the frequency of three routes
- Add two local routes and four new commuter routes
- Further expand smart mobility programs to include municipal partnerships

**Est. Additional Capital Cost**: $3.7B – $4.1B
**Est. Additional Annual Operating**: $53M – $59M

**TOTAL**
- Funding requirements for NextGen by 2050
  - Capital costs* require an additional $4.9B – $5.4B
  - Annual operating costs* increase by $113M – $127M

Phasing costs are an example. Actual costs will depend on selected improvements.

*2016 year of expenditure.
COTA’s current funding sources are fully allocated to maintaining its current network and service levels. The NextGen Vision requires additional capital and operating dollars to fund transformative mobility improvements.

The NextGen Vision’s mix of high capacity transit, an improved local bus network, and smart mobility options could be funded from a variety of sources. Following are brief summaries of potential capital funding sources, including existing sources. Potential funding options may change over time.

FEDERAL SOURCES

On December 4, 2015, the Fixing America’s Surface Transportation (FAST) Act was signed into law—the first federal law in over a decade to provide long-term funding for surface transportation infrastructure planning and investment. The FAST Act authorizes $305 billion over fiscal years 2016 through 2020 for highway and motor vehicle safety, public transportation, motor carrier safety, hazardous materials safety, rail, and research, technology, and statistics programs. The following sections highlight a number of federal programs that could be used to support transit service in central Ohio.

The Federal Transit Administration (FTA) administers the Section 5309 Capital Investment Grant (CIG) Program. This program is the primary source of federal funding for major fixed-guideway transit capital investments, such as new and expanded rapid rail, commuter rail, light rail, streetcar, and bus rapid transit. This discretionary program requires projects to proceed through a multi-step, multi-year process to be eligible for funding with FTA evaluation and rating required at various points in the process. The first step is called Project Development, the second Engineering, and the third a Full Funding Grant Agreement for construction.

There are four categories of eligible projects under the FTA Section 5309 program: New Starts, Small Starts, Core Capacity, and Programs of Interrelated Projects. The program can fund up to 60 percent of total project costs for New Starts projects, and up to 80 percent of Small Starts, Core Capacity, and Programs of Interrelated Projects.

- **New Starts projects** are new fixed-guideway projects or extensions to existing fixed-guideway systems with a total estimated capital cost of $300 million or more that are seeking $100 million or more in Section 5309 CIG program funds.
- **Small Starts projects** are new fixed guideway projects, extensions to existing fixed-guideway systems, or corridor based bus rapid transit projects with a total estimated capital cost of less than $300 million that are seeking less than $100 million in Section 5309 CIG program. Small Starts projects must either (a) meet the definition of a fixed guideway for at least 50 percent of the project length in the peak period or (b) are corridor-based bus projects with 10 minute peak/15 minute off-peak headways or better while operating at least 14 hours per weekday.
- **Core Capacity projects** are substantial corridor-based capital investments in existing fixed-guideway systems that increase capacity by not less than 10 percent in corridors that are at capacity today or will be in five years. Core capacity projects may not include elements designed to maintain a state of good repair.
- **Programs of Interrelated Projects** are comprised of any combination of two or more New Starts, Small Starts, or Core Capacity projects. The projects in the program must have logical connectivity to one another and all must begin construction within a reasonable timeframe.

**FTA Section 5307 Urbanized Area Formula Grants** provide transit capital and operating assistance and transportation-related planning in urbanized areas of 50,000 residents or more. Eligible purposes include the following:

- Planning, engineering design, and evaluation of transit projects and other technical transportation-related studies
- Capital investments in bus and bus-related activities such as replacement of buses, overhaul of buses, and rebuilding of buses
- Crime prevention and security equipment
- Construction of maintenance and passenger facilities
Chapter 6: Phasing and Funding Options

- Capital investments in new and existing fixed guideway systems including rolling stock, overhaul and rebuilding of vehicles, track, signals, communications, and computer hardware and software
- All preventive maintenance
- Some Americans with Disabilities Act complementary paratransit service costs

FTA Section 5307 funds can be used for up to 80 percent of capital expenses, and up to 90 percent of the cost of vehicle-related equipment attributable to compliance with the Americans with Disabilities Act and the Clean Air Act, and for projects or portions of projects related to bicycles.

For large urbanized areas with populations of 200,000 or more, such as Columbus, funds are apportioned and flow directly to a local designated recipient. These funds are allocated to areas with populations of 200,000 and more, based on a combination of bus revenue vehicle miles, bus passenger miles, fixed guideway revenue vehicle miles, and fixed guideway route miles as well as population and population density. Thus, as COTA expands services, the amount of Section 5307 funds that it receives may increase.

In the Columbus urbanized area, which includes the entire COTA service area, Mid-Ohio Regional Planning Commission (MORPC) is the designated recipient and allocates funds to COTA.

**FTA Section 5310 Enhanced Mobility of Seniors and Individuals with Disabilities**

Funds may be used for paratransit capital and operating costs as well as for other projects that serve the special transportation needs of seniors and individuals with disabilities, including projects to improve access to fixed-route transit. These funds are apportioned to states for rural and small urban areas and designated recipients chosen by the governor of the state for large urban areas or to state or local governmental entities that operate a public transportation service. The federal share is 80 percent for capital projects, and 50 percent for operating assistance.

**FTA Section 5337 State of Good Repair**

Is a newer funding program dedicated to repair and upgrade of existing rail systems. Funding may be used for projects that maintain, rehabilitate, and replace capital assets, as well as projects that implement transit asset management plans.

**FTA Section 5339 Bus and Bus Facilities**

Program provides capital assistance for new and replacement buses, related equipment, and facilities. Eligible bus expenses include purchasing buses for fleet and service expansion, purchasing replacement vehicles, bus rebuilds, and bus preventive maintenance. Eligible facilities include bus maintenance and administrative facilities, transfer facilities, bus malls, transportation centers, intermodal terminals, park-and-ride stations, and passenger amenities such as shelters and bus stop signs. Eligible equipment includes accessory and miscellaneous equipment such as mobile radio units, supervisory vehicles, fare boxes, computers, and shop and garage equipment. COTA uses Section 5339 funds for these purposes, and as the agency’s service expands will likely be able to leverage more of these funds.

Two discretionary components were added the program in the FAST Act, a national bus and bus facilities competitive program based on asset age and condition, and a low or no emissions bus deployment program. In addition, grantees may use up to 0.5 percent of their 5339 allocation on Workforce Development activities. Workforce development activities could include developing apprenticeships, on-the-job training, and instructional training for maintenance and operations occupations.

The Federal Highway Administration (FHWA) **Surface Transportation Block Grant Program** is a flexible funding source for many types of transportation projects, including a set-aside specifically for walking, bicycling, and enhancement projects. The program allows state departments of transportation to shift some of these funds to transit projects, moving funds into one or more of the FTA funding programs described above.

The FHWA **Congestion Mitigation and Air Quality Improvement Program (CMAQ)** provides funding to state transportation departments to reduce congestion and improve air quality. Areas eligible for investment include those that do not meet the National Ambient Air Quality Standards (nonattainment areas) and former nonattainment areas that are now in compliance (maintenance areas). Eligible activities under CMAQ include transit system capital expansion and improvements that are projected to realize an increase in ridership; travel demand management strategies and shared ride services; pedestrian and bicycle facilities; and promotional activities that encourage bicycle commuting.
Funds are distributed by state transportation departments based on an area’s population by county and the severity of its ozone and carbon monoxide problems within the nonattainment or maintenance area, with greater weight given to areas that are both carbon monoxide and ozone nonattainment/maintenance areas. There are funding set-asides for State Planning and Research and PM2.5 nonattainment or maintenance areas.

**Transportation Investment Generating Economic Recovery (TIGER)** is a discretionary U.S. Department of Transportation grant program that allows the agency to invest in road, rail, transit, and port projects. Funding varies annually based on congressional allocations, and grants are awarded on a competitive basis.

The **Transportation Infrastructure Finance and Innovation Act (TIFIA)** provides federal secured loans, loan guarantees, and lines of credit to national and regionally-significant surface transportation projects, including bus and rail transit. The program is designed to fill market gaps and leverage substantial private match (or co-development) funds by providing supplemental debt financing. The amount of a TIFIA line of credit cannot exceed 33 percent of the total capital cost of a project; TIFIA loans cannot exceed 49 percent of the total project cost. The loans are backed by federal revenues.

As a general rule, to receive TIFIA credit assistance under the FAST Act, a project must have costs that equal or exceed either $50 million or one-third of the most recently completed fiscal year’s formula apportionments for the state in which the project is located. However, transit-oriented development and local infrastructure projects that are sponsored by a local government for a project on a locally-owned facility need only cost $10 million.

The **Railroad Rehabilitation and Improvement Financing (RRIF)** program provides direct federal loans and loan guarantees to finance the development of railroad infrastructure. The FAST Act contains several provisions intended to streamline the loan approval process, increase access to the program, and fund a wider array of projects. It also makes transit-oriented development elements of passenger rail station projects eligible for RRIF.

**STATE SOURCES**

**State Infrastructure Bank.** Public transit projects are eligible for loans, lines of credit, and other capital funding support from the Ohio State Highway and Transit Infrastructure Bank. The purpose of the infrastructure bank is to encourage public and private investment in transportation facilities that contribute to the multi-modal and intermodal transportation capabilities of the state, develop a variety of financing techniques designed to expand the availability of funding resources and to reduce direct state costs, maximize private and local participation in financing projects, and improve the efficiency of the state transportation system by using and developing the particular advantages of each transportation mode to the fullest extent.

**Tolls.** Bridge or high occupancy toll (HOT) lane tolls are another potential source of transit funding. Bridge tolls are a major source of transit funding in the Bay Area, and Metro operates two HOT lanes in Los Angeles County that help fund transportation projects. In Orange County, CA, the 91 Express Lanes are owned and operated by the Orange County Transportation Authority. New transit projects in this corridor are eligible for excess toll revenues. In Virginia, the funding packages for HOT lanes in the Dulles Corridor and I-95/I-395 Corridors called for using a portion of the toll revenues to provide financial support for transit. One other potential toll funding mechanism utilizes toll credits, which can be used as a local match for federal funding. Toll credits from an I-5 bridge between Vancouver, WA and Portland, OR were considered for helping fund the construction of a light rail extension.

**COUNTY AND LOCAL SOURCES**

**Local Sales Taxes.** The COTA service area currently has a 0.5 percent sales tax dedicated to transit. A 0.25 percent sales tax was adopted in 1999 and is permanent. A second 0.25 percent sales tax was adopted in 2006 to expand the system. The most recent renewal of that sales tax occurred in 2016 and will remain in effect through 2026.

**Property Taxes.** Property taxes are used by many states and municipalities to support both local government and transit. Property taxes are a primary funding mechanism for most Michigan systems. Toledo is an example of an Ohio city that uses property taxes.
Parcel Taxes. Parcel taxes are common tools used by California cities to raise money for specific projects. Parcel taxes consist of a flat fee on a piece of property, unlike property taxes which vary by a property’s valuation. Parcel taxes can be bonded to accelerate projects and can be used for both capital and operating funding. Parcel taxes are not currently used in Ohio, but were considered as a potential statewide 911 funding mechanism.

Motor Vehicle Fuel/Gas Taxes. In California, the state charges an excise tax on fuel sales, a portion of which it distributes to local transportation projects. Cities, in turn, charge sales taxes on gasoline. There are no examples in Ohio of this being used.

Vehicle Registration Fees and Excise Taxes. In some states, cities may levy vehicle registration fees. Existing examples include the following:

- The City of Milwaukee charges a $20 “wheel tax”, which is an annual registration fee for each vehicle. Funding is used for transportation, including transit.
- In California, Orange County charges a $1 fee for motorist services.
- In the Bay Area, the city of Alameda charges a vehicle registration fee of $10 per year, 25 percent of which is dedicated to transit.
- San Francisco charges a $10 annual fee that is used for transportation improvements, including transit.
- Seattle charges $80 annually per vehicle for transportation improvements, including transit.
- In Washington, Sound Transit assesses a vehicle excise tax, based on the value of the vehicle. Two phases of Sound Transit have depended on this tax.

Real Estate Transaction Fees. In a few cases, real estate transaction fees are used to fund transit:

- Virginia has a deed-recording fee that that ranges from $21 to $54 that is used to support local bond issues for transit projects.
- Florida charges a real estate documentary tax of $0.70 per $100 of the transaction value, 10 percent of which is used to match federal New Starts funds.

Rental Car and Hotel Taxes. Rental car and hotel taxes tend to be more acceptable to voters than other types of taxes, as they fall largely on non-residents. Sound Transit uses rental car fees in the Seattle area.

Commercial Parking Taxes. Many cities charge a commercial parking tax: the cities of San Francisco and Seattle, for example, have commercial parking tax rates of 25 percent and 12.5 percent, respectively. In those examples, portions of the revenue stream are allocated for major capital projects, with an emphasis on multimodal projects that reduce the demand for parking expansion. There is no statutory limit to the tax and it can be used for a wide variety of transportation projects and programs, including bonding to pay for capital projects.

Commercial parking tax funds are subject to competing priorities, including general fund uses. However, depending on the rate they have the potential to provide needed capital and operating funds.

Parking Benefit Districts. In a parking benefit district, municipalities spend a portion of parking meter revenue collected in the district on local priorities. Parking revenues can also be bonded to accelerate a capital project. The city of Pasadena has employed this funding mechanism in its Old Town district.

General Obligation Bonds. Bonds are usually raised against a specific asset or revenue source.

City General Funds. City general funds are composed of a number of funding sources, such as property tax revenues, sales tax revenues, fees, and fines. Cities may elect to fund a portion of a local transit project’s capital or operating needs from their general funds. Because any allocation from the general fund would compete directly with other citywide needs, this is a resource that can be difficult to tap for transit projects.

Other Local Sources. A wide variety of other taxes and fees are less commonly used for transit:

- Alcoholic Drinks in Bars. Allegheny County, Pennsylvania (Pittsburgh) levies a 10 percent tax on poured drinks in restaurants and bars.
- Payroll Taxes. A few jurisdictions levy payroll taxes for transit. One example is the state of Oregon, which levies a payroll tax on employers in areas served by TriMet (Portland) and Lane Transit District. Cincinnati also levies a payroll tax to fund SORTA.
PRIVATE SOURCES

Community Benefit District/Business Improvement District (CBD/BID). CBD/BID formation requires the support of property owners who agree to a special assessment on their property tax in exchange for benefits the city would not otherwise provide. Funding for a transit project could come from an expansion, extension, or reallocation of these funds, subject to a vote of the membership.

Funds from a CBD can be used for both capital and operating purposes, and can be bonded to accelerate project delivery. Expenditures are guided by a management plan detailing how collected funds can be used.

Note that while CBD/BID funding of streetcar projects is relatively common, CBDs are generally not formed in support of bus projects. It is unlikely that both a CFD and CBD would be implemented in the same area, since they are both tools for generating a property tax levy in a confined area.

Value Capture. The concept of value capture is based on the anticipated development and commercial activity a transit investment is projected to spur over a reasonable period of time. Economic and land development will result in added value along the project segment, generating incremental property taxes and other fees that may be used for transit. There are numerous mechanisms, such as different kinds of assessment districts, for carrying out value capture. Tax increment financing (TIF) is a type of value capture. Value Capture type financing has often been used to help fund rail projects, particularly streetcars.

Naming Rights. For streetcar projects in particular, sponsorship of stops and vehicles is a common source of funding. Stop sponsorships, which brand the panels at shelters, have been sold in many cities implementing streetcar or shuttle projects. Some systems, such as Tampa’s TECO Trolley, have also sold naming rights for the entire system. This practice builds on the more standard practice of selling advertising at stations and on vehicles and allows stations to remain ad-free while still generating revenue. Both streetcars, such as the Cincinnati Bell Streetcar, or bus rapid transit lines, such as the Healthline in Cleveland, have used naming rights for funding.

PUBLIC-PRIVATE SOURCES

Public-Private Partnerships (P3s). P3s are an increasingly common way to finance, construct, and operate transportation infrastructure. In a P3, the sponsoring agency partners with a private firm or firms to reduce the risk of cost and schedule overruns (as the private partner agrees to deliver the project on a fixed schedule, for a fixed price). The partnership reduces initial costs, as the private partner typically contributes part of the capital cost. It also reduces lifecycle costs by taking advantage of private-sector efficiencies: the partnering firm may be unencumbered by regulations that apply to public agencies, such as Buy America requirements, or by political pressure to add unnecessary elements to projects.

Depending on how the P3 is structured, the private partner may take on (with public oversight) various roles that would typically be the responsibility of the sponsoring agency. For example, in a design-build-finance-operate-maintain (DBFOM) arrangement, the private partner would design, build, finance, operate, and maintain the project. Such arrangements are common internationally, including in Canada, and are often used for toll roads in the United States. They are increasingly common for transit projects, including a $2.2 billion commuter rail project in Denver, a light rail project in Maryland, and streetcar projects in Washington, D.C., and Detroit.

Congress has encouraged more widespread application of P3s to transit projects, yet there are challenges with implementation in many cases. While often criticized for perceived privatization of public assets, P3s are typically structured so that the public maintains ownership and control over assets and key aspects of operations, such as service levels and fares. Private partners are also typically subject to performance standards.

Moreover, sponsoring agencies accustomed to traditional contracting processes may be unprepared for the special requirements associated with a P3, from both a legal and administrative perspective. Finally, private partners will only invest on the expectation of a return. Future projects pursuing P3 arrangements would require much more detailed financial and revenue forecasting analysis.

1 A sales tax not to exceed 1 percent on sales within the TDD boundary
### KANSAS CITY, MO

In 2016, Kansas City began service on the downtown KC Streetcar, a 2.2 mile long segment connecting downtown with Union Station. The streetcar is operated by the Kansas City Streetcar Authority (KCSA), a not-for-profit corporation. The authority was created in 2012 after a failed regional transit vote failed. The KCSA manages, operates, and maintains the streetcar. It also supports system branding, marketing, public communication, and community engagement.

The KCSA is supported by a taxing district defined by the downtown Transportation Development District (TDD). Three different funding mechanisms combine to provide the capital and operating support for KCSA. These include:

- A sales tax not to exceed 1 percent on sales within the TDD boundary
- A special assessment on real estate within the TDD boundary, with maximum annual rates as follows:
  - 48¢ for each $100 of assessed value for commercial property ($1,536 for each $1 million of market value)
  - 70¢ for each $100 of assessed value for residential property ($266 for each $200,000 of market value)
  - $1.04 for each $100 of assessed value for property owned by the City (which would mean a total annual City payment of about $810,000)
  - 40¢ for each $100 of assessed value for real property exempt from property tax, such as religious, educational, charitable, etc. property, but only on market value more than $300,000 and less than $50 Million.
- A supplemental special assessment on surface pay parking lots within the TDD boundary (not garages and not free parking lots). The maximum rate for the supplemental special assessment on surface pay parking lots will be $54.75 per space per year.

[kcstreetcar.org/about-streetcar/kcsa/](http://kcstreetcar.org/about-streetcar/kcsa/)
DENVER, CO

The Denver region is investing more than $7 billion (approximately $150 annually per capita) to develop the FasTracks rail transit system. Regional Transportation District (RTD) funding sources include a dedicated 1 percent regional sales tax approved by voters, federal grants, and mortgages on property assets. RTD is the first transit agency in the country to successfully attract private-sector investment for a light-rail system. One small suburb offered $30-40 million to accelerate construction of a rail connection, which then allowed RTD to seek matching investors.

The RTD built trust with major infrastructure firms by soliciting their design ideas early in the process. RTD’s CEO Phil Washington met with business leaders to seek their input. RTD subsequently developed a P3 transit project procurement system based on those ideas. RTD contracted with a multinational business group to build the rail line to the airport within certain parameters, including a set schedule. Denver committed to pay a flat fee. This financing plan allows FasTracks to be almost completed by 2018.

theatlantic.com/business/archive/2014/10/how-denver-leaders-pulled-off-a-public-transit-miracle/425583/

INDIANAPOLIS, IN

Indy Connect is Central Indiana’s regional transit initiative. In recent years, Central Indiana has seen an increased demand for frequent, reliable, and safe transit. What started as a partnership between business and government leaders called the Central Indiana Transit Task Force has since become a partnership between public agencies, leading to the creation of the Indy Connect initiative in 2009. This led to a detailed series of planning and engineering documents including private-sector task force reports, financial models, numerous public input and feedback sessions, and research reports on national best practices. The Indy Connect plan was completed in 2011.

Between 2011-2014, an extensive lobbying process was undertaken to allow local option income taxes to become eligible to fund transit. Local option income taxes had traditionally been used to fund libraries, economic development, and other improvements. In 2014, the state legislature approved the taxation option.

Concurrent to the lobbying process, public outreach continued to build support for
Chapter 6: Phasing and Funding Options

the plan. This involved the MPO, the Chamber of Commerce, and a not-for-profit organization created for this purpose.

In 2016, Marion County voters passed the Indy Connect plan by approving a 0.25 percent income tax increase that will raise $54 million annually. This will be leveraged to pay for three new bus rapid transit lines, new buses, increased route frequency, and new sidewalks and bus shelters.

One of the unique funding features of the funding package is the creation of a nonprofit foundation whose goal is funding 10 percent of the proposed Red Line BRT. The foundation is dependent on contributions from local businesses and was created in lieu of a 10 percent corporate income tax.

CHARLOTTE, NC

Nearly a decade ago, Charlotte and Mecklenburg County, N.C. adopted an aspirational plan for 25 miles of commuter rail from uptown to Lake Norman, 21 miles of light rail, 16 miles of streetcar, 14 miles of rapid bus transit, and an expansion of the bus system stretching to all sides of the city by 2030. The program is behind schedule. The biggest obstacle is money.

The primary source of local transit funding is a sales tax approved by voters in 1998 that devotes half a cent of the 7.25 percent sales tax to fund transit services. That revenue declined significantly during the recession, creating a $2.3 billion funding gap in the Charlotte Area Transit System (CATS) budget. A transit funding task force has recommended several new revenue options for city officials to consider, including low, fixed-rate federal loans, public-private partnerships, and an increase in the portion of the local sales tax designated for transit spending. Nothing has been decided yet.

The $150 million cost of the streetcar Phase 2 will be financed by a $75 million federal grant and $75 million from the city. The city’s share will come from unallocated and contingent capital accounts, not property taxes. To finance the $200 million Gateway Station, complex transit administrators will seek a public-private partnership. The Lynx Blue Rail Line extension, estimated to cost $1.1 billion, will receive about half of its funding from federal grants – 26 percent from the state, and 24 percent from the city – which will be paid by the existing half-cent sales tax designated for transit.

In 2016, Cincinnati opened up a new streetcar connecting Downtown and the Over-the-Rhine neighborhood. The project cost approximately $133 million, of which $45 million were covered by federal sources, including urban circulator funding. And additional $33 million of the project cost was financed using a property tax capital, or debt that’s backed by property taxes. The remainder of the project budget was covered by city’s general fund.

The streetcar has some unique and innovative funding arrangements. Anticipated revenues between June 2017 and June 2018 includes the following:

- $0.88 million from fares, advertising, and naming rights
- $1.8 million from on-street parking revenues
- $0.9 million from the Haile U.S. Bank Foundation
- $0.5 million from a Voluntary Tax Incentive Contribution Agreement (VTICA), where companies contribute to operations as part of obtaining a tax break.

In November 2016, Wake County, N.C. (population 1 million), which includes Raleigh, approved a 0.5 percent sales tax increase to fund a transit plan that would increase bus service and develop commuter train service connecting major regional destinations including N.C. State University, Research Triangle Park, Duke University and UNC-Chapel Hill. Wake residents now pay a 6.75 percent sales tax, of which the state collects 4.75 cents and the county 2 cents. The sales tax increase will generate about $1 billion during its first decade. A new vehicle registration fee and federal funds are expected to provide the remaining $1.3 billion required. Durham and Orange County voters already approved a half-cent sales tax increase to fund more transit. Durham and Orange plan for light rail, and Wake is seeking commuter rail. The plan also includes new bus routes and more frequent service. The plan also includes 20 miles of bus rapid transit (BRT) service, operating every 15 minutes on 20 miles of Capital and Western boulevards, New Bern Avenue and South Wilmington Street. Planners predict that these improvements could quadruple transit ridership in Wake County during the next decade.

newsobserver.com/news/local/counties/wake-county/article82093997.html
ATLANTA, GA

In November 2016, Wake County, N.C. (population 1 million), which includes Raleigh, approved The Atlanta Streetcar initiated service in late 2014. Property assessments were a key component of the funding package for the transit line. An initial bid for federal funding under the federal TIGER (Transportation Investment Generating Economic Recovery) grant program failed, but in 2010 a reconfigured application, with a scaled-down funding request and additional local contributions, won the project nearly $48 million in TIGER II money. With funding from the city and other sources covering the remaining capital costs.

The Atlanta Downtown Improvement District is setting aside for the streetcar a portion of its revenue generated from an annual assessment of 5 cents per $1,000 of assessed commercial value on 200 city blocks. In 2010, the district’s board, which has long championed the streetcar project, approved an allocation for transit from the district’s ongoing funding of up to $20 million over 20 years, split between construction and annual operating contributions.

urbanland.uli.org/industry-sectors/infrastructure-transit/using-special-assessments-to-fund-transit-investments/
Federal Funding Available for High Capacity Transit

Federal 5309 grants have been a traditional source of funding for high capacity transit investments. The FY 2017 Capital Investment Grants summary outlines peer city total capital costs as well as the anticipated 5309 grant size and share. The 5309 share ranges from 35 to 80 percent. COTA can anticipate similar levels of support for funding high capacity transit improvements that rank competitively in the Federal funding process.

Figure 6-1 Minimum Weekday Span and Frequencies

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<tr>
<th>PROJECT</th>
<th>TOTAL PROJECT COST</th>
<th>5309 REQUEST</th>
<th>5309 SHARE</th>
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Next Steps

The NextGen Vision reflects the desires of the very broad base of stakeholders and public who were consulted as part of this effort, but it will require substantial investment to implement and be challenging to obtain funding. As a result, COTA will create a community-based steering committee to prioritize components of the NextGen Vision. The steering committee will consist of COTA Board of Trustee members, the business community, public officials, major stakeholders, and the general public to set the direction for prioritizing NextGen projects and develop funding alternatives.

In conjunction with developing funding options, multiple short-term efforts that build upon current momentum surrounding transit improvements and innovation should be pursued.

**Leverage Smart Columbus Efforts.** Smart Columbus is currently leading implementation efforts for multiple technology-based initiatives that improve mobility for Columbus residents. Many of these efforts are targeted toward the Linden neighborhood and expand the reach of the CMAX Cleveland Avenue BRT. The Smart Columbus efforts should be extended regionally, and include expansion of first/last mile solutions, autonomous vehicles, and integrated fare payments. New app-based, on-demand services could also be used to extend evening services.

**Build upon the Recently Implemented TSR Network.** The 2017 implementation of the TSR network almost doubled the amount of jobs and residents within a quarter mile of high-frequency service that comes every 15 minutes or better. There are additional opportunities where existing routes could be successfully upgraded to high-frequency routes. In addition, as the TSR network matures, adjustments will be necessary to respond to unanticipated market demand.

**Improve Job Access.** Stakeholder and public input clearly pointed to the need for enhanced connections to job-sites. Identifying new travel patterns to growing job sites such as New Albany, Groveport/Rickenbacker, or Northern Tier suburbs is crucial to ensure that citizens throughout central Ohio have ladders of opportunity. Specific strategies could include more freeway based commuter services, later evening service, or partnerships to provide connections to job suburban job-sites.

**Begin Development for High Capacity Transit Services.** COTA will deliver central Ohio’s first BRT corridor in 2018. From project initiation to completion, more than 7 years will have passed. For more complicated high capacity transit corridors that involve rail or more dedicated right-of-way, the average time between initial corridor planning and implementation is about 10 years. In order to deliver high capacity transit in the future, moving corridors beyond conceptual visioning and into project development must occur.

**Develop Long-Range Implementation Plan.** All major transit investment programs, including those in Denver, Salt Lake City, Phoenix and others, represent long-range efforts. Most include the development of a “Program of Projects” that defines which projects will be implemented when, and how they will be financed. COTA, in conjunction with the steering committee, will need to develop a long-range implementation plan that will define how this will be done for all projects.

This plan will also provide the information required to support efforts to obtain approval for legislative and/or voter approval for new funding to expand service.

**Partnerships.** Implementation of the full NextGen Vision will require strong partnerships. Most new transit lines will operate on highways and streets controlled by local communities and the Ohio Department of Transportation (ODOT). As such, local communities and ODOT will need to support the roadway changes needed to build high capacity transit services such as light rail, streetcar, BRT, and commuter rail.

In addition, for transit to be successful, people need to be able to walk to and from it. If a light rail line between downtown Columbus, the John Glenn International Airport, and Easton Town Center were implemented today, it would not be successful because too few people would be able to access it. Development patterns would need to densify around walkable, mixed-use nodes that would make light rail stations viable. This type of transit oriented development should be encouraged by local municipalities, to facilitate the development of high capacity transit.

The steering committee can be used as a platform to foster these partnerships.