Short Range Plan

2016-2020

September 2016
Introduction

In 2010, The Rapid adopted the Transportation Master Plan (TMP) that serves as the guiding document for the agency to the 2030 planning horizon. Many of the priorities identified in the TMP have already been implanted through the passage of the May 2011 millage, subsequent service improvements in FY 2012-2013, and the implementation of the Silver Line in August 2014. Nevertheless, there remains a list of priorities in the TMP that have not been implemented. Based on the remaining priorities established in the TMP and subsequent public and Board input, The Rapid Short Range Plan serves as the agency’s guiding document for services and capital projects through the 2016-2020 planning horizon. The highlights of the Short Range Plan include the fact that all Rapid revenues and services will remain stable, the Laker Line is anticipated to be completed in the Spring of 2019, and all capital project priorities through 2020 will be fully funded.

The Rapid 5-Year Outlook

Several assumptions determine the 5-Year outlook for the agency. These assumptions affect operating revenue forecasts, service levels, and projected ridership.

Revenue Forecast

The operating budget is determined by property tax, state operating assistance, as well as fare and contract revenue. Several assumptions have been made with regard to these revenue sources. First, projections are based on maintaining current service levels with the exception of the Laker Line that is anticipated to be implemented in late FY 2018. Second, operating expenses, such as purchased transportation and repair parts have been projected utilizing historical trends. Third, the operating cost savings as a result of transitioning the fleet to CNG will be realized in FY 2018 and beyond. Fourth, State Operating assistance is anticipated to be 31.5% in FY 2017, increasing to 33% in FY 2020. Fifth, contracted service hours for FY 2017-2020 are projected at FY 2017 levels. The final assumption is that the property tax mill rate is anticipated to remain at 1.47 and that collections are projected to increase 2% annually.

Figure 1 illustrates operating revenues for Fiscal years 2016-2020. It is important to note that because The Rapid maintains a balanced budget, operating expenses always equal operating revenues as
illustrated in figure 2. This is because The Rapid will be able to use capital funds to cover some operational expenses (Preventive maintenance), assumed increases in property taxes, state operating assistance, as well as fare and contract revenue, the overall operating budget will increase each year through 2020. As a result, operating revenues are stable and current service levels are secure. Furthermore, the use of Preventive maintenance will decrease from $2.3 million in FY 2016 to $1.1 million in FY 2017 and to $224,622 in FY 2020. In summary the operating budget in FY 2016 is $42,542,731 and the operating budget for FY 2020 is anticipated to be $48,644,770 which is an increase of 18.3%.

Figure 1

Operating Revenue by Source and Fiscal Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Fare and Contract Revenue</th>
<th>Property Tax</th>
<th>State Operating Assistance</th>
<th>Preventive Maintenance</th>
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<tbody>
<tr>
<td>2016</td>
<td>$20,000,000</td>
<td>$10,000,000</td>
<td>$10,000,000</td>
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<tr>
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<td>$20,500,000</td>
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<td>$10,500,000</td>
<td>$2,000,000</td>
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<td>$21,500,000</td>
<td>$11,500,000</td>
<td>$11,500,000</td>
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<tr>
<td>2020</td>
<td>$22,000,000</td>
<td>$12,000,000</td>
<td>$12,000,000</td>
<td>$500,000</td>
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</table>
As illustrated in figure 3, the vast majority of the operating cost by mode is fixed route service, followed by demand response and Bus Rapid Transit (Silver Line and Laker Line). Moreover, when the Laker Line becomes operational in FY 2019, fixed route expenses will decline and BRT expenses will increase because of the Laker Line replacing the existing Route 50 service.
Figure 4

Revenue Hours by Mode and Fiscal Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Fixed Route</th>
<th>Demand Response</th>
<th>Bus Rapid Transit</th>
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<tr>
<td>2016</td>
<td>520,000</td>
<td>35,000</td>
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<tr>
<td>2020</td>
<td>600,000</td>
<td>55,000</td>
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</table>

Legend: Fixed Route, Demand Response, Bus Rapid Transit
**Ridership Forecast**

The primary factors that determine ridership are level of service, fare prices, and gas prices. A combination of low gas prices, lack of additional service, and a fare increase of 17% in FY 2015 has resulted in a decline in overall system ridership. Figure 5 illustrates a ridership on The Rapid since 2000. Ridership peaked in FY 2014 with a record ridership of 12.5 million. This ridership milestone was the result of a series of service improvements implemented in FY 2012 and 2013 as well as gas prices that peaked.

![The Rapid Ridership History by Fiscal Year](image)

Figure 6 illustrates that despite the loss in ridership in FY 2015 and FY 2016, ridership remains substantially higher that FY 2000 levels because of the investment of service in the six-city area. Despite a decline in ridership since 2014, the five-year projection of ridership shows a gradual increase each year from FY 2017 through FY 2020.

Two factors that affect this change include an anticipated increase and implementation of the Laker Line in FY 2019. Figure 6 illustrates projected ridership from FY 2016 to FY 2020 compared to the highest ridership year in FY 2014, the lowest ridership year in FY 2000 as well as the FY 2005 and FY 2010 ridership. Moreover, the anticipated growth in ridership—particularly 400,000 more rides in FY 2019 and 500,000 more in FY 2020 because of the Laker Line—is anticipated to exceed FY 2014 levels.
Service Improvements

The Short Range Plan prioritizes service improvements based on a variety of factors. More specifically, the Transportation Master Plan (TMP) serves as the guiding document for the agency that prioritizes service improvements based on public input and data analysis. In addition, staff have since engaged both the public as well as The Rapid Board to further determine what additional services remain a priority for The Rapid moving forward. Figure 7 illustrates the service priorities as identified by TMP. In summary, the service priorities identified in TMP are as follows:

- Expanded Service Hours
- Increase Frequency of Service
- Additional Modes (BRT & Streetcar)
- Extend Service Outside Six-City Area
- Improve Under-served Areas
The Five-Year plan uses four categories to further determine which services are priorities within the 2016-2020 time frame (see figure 7). These categories include cost, public and Rapid Board input, efficiency of service, and geographic equity. Using these metrics, a list of priorities have been developed. It is important to note, however, that because no additional revenue sources are anticipated in the 2016-2020 timeframe, additional services must be cost-neutral or implemented only if additional revenues are identified.

Several cost-neutral route improvements have been implemented in FY 2016 based on the Short Range Plan priorities. These include the following:

- Route 28 28th Street Extension to Cascade Township – Implemented January 2016
- Route 7 West Leonard Sunday Service – Implemented May, 2016
- Route 19 Michigan Realignment – Implemented August, 2016
- Weekday Peak Hour Frequency Adjustment – Implemented August, 2016
• DASH Service Realignment – Implemented September, 2016
• Paid Fare Zone for Silver Line – Implemented September, 2016

Figure 8 illustrates a list of service priorities that have been established by The Rapid Board. Many of the service improvements identified in the TMP have already been implemented as a result of the successful millage in May 2011. Of note are numerous frequency improvements, extended hours of service, expanded weekend service, and the implementation of the Silver Line in August 2014. Furthermore, the extension of Route 28 into Cascade Township and the realignment of Route 19 have also been implemented. There are, however, several service improvements listed in the TMP that have not yet been implemented and as a result there remain several priorities ranging from ‘high’ to ‘low’ as identified in figure 8. Most of these priorities involve improving weekend service throughout the system. This includes the following:

• Additional Sunday service on the west side of Grand Rapids
• Extend 15-minute service on weekday by 1.5 hours
• Increase weekday off-peak frequency to every 15-minutes
• Extend weekday evening service to 12:15 AM
• Additional Sunday service
• Increase frequency of service on Sundays to every 30-minutes
• Add 15-minute service on Route 3 – Madison on weekdays
• Increase Saturday frequency to every 30-minutes
• Expand existing Saturday 30-minute frequency by 2 hours
• Extend Saturday evening service until 12:00 AM
• Extend Sunday service until 9:00 PM
• Expand Route 19-Michigan service to all-day on weekdays
• Extend Route 2 – Kalamazoo to Gaines Township Meijer
• Extend Route 11 – Plainfield into Plainfield Township
### 5 Year Short Range Plan - Improvement Impact

The following improvements are identified by impact categories. Each category has been scored relative to each listed improvement using a symbol. Please prioritize each improvement according to your personal priority level: **HIGH** - **MEDIUM** - **LOW**

#### Board's Rankings

<table>
<thead>
<tr>
<th>Rank</th>
<th>Cost to the Rapid</th>
<th>Public Input</th>
<th>Projected Efficiency</th>
<th>Geographic Equity</th>
<th># Buses to Purchase</th>
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#### Contracted Service Improvements (Not Funded from Rapid Operating)

- **N**: Extend service into Cascade Township
- **O**: Extend into Plainfield Township

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The Rapid Short Range Plan: 2016 - 2020

September 2016
5-Year Capital Plan

The five-year Capital Plan outlines the agency’s capital priorities from FY 2016-FY 2020. Table 1 illustrates the agency’s five-year capital plan in more detail. The agency has a number of capital priorities and must be prioritized to maximize the use of primarily 5307 formula dollars. These priorities generally include fleet replacement needs, facility needs including new investments and maintaining a status of good repair, technology needs, and any project that will reduce the long-term operating expense of The Rapid. In order to fund these needs, capital projects are determined by the following priorities:

1. Fleet Replacement
2. Facility Needs
3. Technology Needs
4. Capital Projects that Reduce Operating Expenses

Table 1 illustrates the capital project outlay for Fiscal years 2016-2020. Highlights of this plan include the replacement of 99 Compressed Natural Gas (CNG) fueled fixed-route vehicles to from FY 2017 – FY 2020, the renovation of Wealthy Operations Center to be CNG compatible which is scheduled for completion in October 2016, and the construction of a CNG fueling station located at 1020 Market Ave SW slated for completion in the Spring of 2017. In addition, all other capital projects such as the route flag installation project and the Smart Card project are fully funded.
In the fall of 2013, The Rapid began investigating the possibility of converting, through scheduled vehicle replacement, its fleet of 150 fixed route buses to use compressed natural gas (CNG) as a fuel. Extensive analysis showed significant operating costs savings over the coming years from the conversion to CNG. While ITP’s 11 year average cost for diesel fuel has been $2.48 per gallon, our projections are that CNG will cost $0.94 per diesel-gallon equivalent. When the conversion of the entire fleet is completed in
about 9 or 10 years, The Rapid will experience a savings of $2.5 million per year in fuel costs. In addition, vehicle maintenance costs are expected to decrease as well due to the elimination of various emissions systems on buses that are fueled by diesel fuel.

The conversion to CNG fueled vehicles involves three components

- the purchase of the buses,
- modifications to ITP’s Wealthy Street maintenance facility to house and maintain CNG buses, and
- the construction of a CNG fueling station.

**CNG buses:**

In early 2014, ITP led a group of five transit systems in a joint procurement of 180 buses over the next five years. 104 of these vehicles will be ITP CNG buses. Starting in early 2017, they will arrive with 28, 27, 18, 26 and 5 vehicles per year scheduled to be received at the beginning of each year. The purchases will be funded with anticipated 5307, 5339 and CMAQ dollars with MDOT providing the 20% match.

Extensive training will be required for the staff of ITP’s maintenance department with the introduction of this new fuel system. All of the required training is specified in the contract with the vehicle manufacturer, Gillig, with whom we have a long standing relationship. ITP’s mechanics will be trained and will be certified as CNG vehicle technicians, thus enabling them to provide all of the post-accident and post-service fueling system certifications that are required. In addition, vehicle service contractor personnel will be trained in the operation and fueling of CNG vehicles.

**Modifications to the Wealthy Street Rapid Operations Center:**

Significant modifications are being performed at ITP’s Rapid Operations Center (ROC) at 300 Wealthy Street to permit lighter-than-air-fueled vehicles to be stored and serviced there. A CNG leakage monitoring system tied to the building’s ventilation and fire suppression systems is being installed. Utility lines are being relocated from the area immediately below the ceiling to at least 18” below the ceiling. Heating systems are being modified to comply with national fire code requirements and connected to the leakage detection system. Regular inspections and certifications of the leakage detection system will be incorporated into ITP’s facility maintenance plan once the requirements of the systems are provided to us and in compliance with all fire and insurance codes and industry best practices.
CNG Fueling Facility:

One of the more complex elements of the CNG conversion project is the design and construction of a stand-alone CNG fueling facility. An effort has been to located this facility within a reasonable distance of the ROC to minimize the amount time required to fuel buses and to located the facility near a natural gas supply that is sufficient for the ultimate volume of natural gas that we are going to need when all 150 buses are CNG. One location that fulfills these two needs is 809 Freeman Ave., SW. The site has since been re-designated as 1020 Market Street to make its location more easily recognizable to people in the community.

The fueling facility has been designed to eventually accommodate up to 150 CNG buses each day. It will ultimately have four CNG fueling islands exclusively for ITP use, space and electrical supply for the eventual 6 CNG natural gas compressors that will be needed when the fleet is fully converted and a designated location for a future retail CNG fuel island to be operated by a yet-to-be-determined private operator. Construction of the ITP portion of the facility will be funded through FTA and MDOT capital funds. No public funds will be used in the construction or operation of the retail sales island. Figure 9 illustrates the layout of the CNG fueling station in more detail.
**Route Flag Installation**

In an effort to make the system more user friendly, and to provide more useful information to passengers, The Rapid will install route flags on all bus stops in the Fall of 2016. Figure 9 illustrates this in more detail. The benefit of Route flags is to easily identify which routes and which direction serve each individual bus stop. Route flags will be installed on every bus stop within the service area and will more clearly provide route and direction information to passengers. Figure 10 illustrates the route flag concept.

**Smart Card Project**

The Rapid is in the process of implementing a new, state-of-the-art contactless fare collection system. This will enable Rapid riders to pay their fares through a variety of methods – all of which only involve briefly presenting your fare medium to a contactless reader instead of having to swipe or insert a ticket into the farebox. Fare media can include the following:

- a Smartcard that can be inside your purse, wallet or backpack;
- a bar code on you smartphone purchased through an app;
- an electronic ticket on your smartphone, and
- bar coded single ride tickets.

Customers will be able to create online user accounts through the internet or a mobile application. Passengers will be able to register their Smartcard, get information about it and renew it either automatically or manually by using a bank account or credit or debit card.

A testing period will begin in the spring of 2017 to make sure all features of the system are working. A test group of volunteers will be selected and given the opportunity to try out the system and report back on their experiences. They’ll be able to use all of the features of the new system from the cards and mobile apps to the online and app-based account system.

The primary goal of The Rapid Smart Card program is to replace the existing magnetic paper ticket with an electronic card that offers more fare options and an on-line account management system. There are multiple benefits of a Smart Card project including faster boarding and a reduction of bus dwell times,
increased convenience and reliability, personal account management, increased data capture, ‘capped’ fare policies, and incentivized period pass policies.

Installation of the Smart Card hardware will begin in December 2016 and the full deployment of the contactless smart cards will be complete by June 2017. Further mobile ticketing options will be rolled out once the smart card system is in place.

Continued Bus Stop Improvements
The Rapid is committed to providing safe, accessible bus stops for our passengers. To this end, The Rapid will continue to maintain and upgrade bus stop facilities through capital grant funds and through working together with local partners. These improvements can include:

- Shelters
- Benches
- Barrier Free Bus Stops
- State of Good Repair

Continued Growing Partnerships
The Rapid partners with a variety of organizations throughout the service area to provide more options for passengers and to upgrade service. This includes such things as purchase of service from Grand Valley State University, employee bus pass programs such as with Spectrum Health and bus stop improvements such as with Downtown Grand Rapids, Inc. The Rapid will continue to develop these partnerships to further enhance mobility in the region. Current partners include:

- Downtown Grand Rapids Inc.
- Mobility Grand Rapids
- Grand Valley State University
- Calvin College
- Grand Rapids Community College
- Spectrum Health
- Aquinas College
- Kendall College
Continued Support of Transit Supporting Activities

Providing the bus trip is just one part of the overall trip. Land use patterns that support transit usage, pedestrian facilities that make for a dignified trip to and from the bus stop, and bike facilities that encourage transportation options all play an essential part in providing regional transit service. Therefore, The Rapid will continue to work with local partners to enhance transit supporting activities such as:

- Transit Oriented Development (TOD) land-use ordinances
- Limited Parking at Bus Stops
- Bike and Pedestrian Activities

Laker Line BRT Project

The purpose of the Laker Line Study was to identify and implement the transit enhancement strategy that will improve connectivity between downtown Grand Rapids and Grand Valley State University, the largest university in the region; provide support for development and redevelopment planning by the corridor communities; mitigate the traffic, parking and other community impacts from the growing amount of travel in the corridor; and capitalize on the potential environmental, community and social benefits of increased transit usage.
Beginning at the Kirkhof Center on the GVSU Allendale campus, the Laker Line will operate along Campus Drive to Lake Michigan Drive, at which point it will transition to mixed traffic operations on through Walker and Standale and into the west side of Grand Rapids. The Laker Line will follow Lake Michigan Drive east of Covell Avenue onto Fulton Street, where it will continue eastward towards the GVSU Pew Campus. Heading east of Pew Campus, the Laker Line will cross the Fulton Street Bridge to Monroe Street north before heading east on Michigan Street to the GVSU CHS Campus.

Preliminary station locations have been identified and will continue to be refined through the environmental clearance process in subsequent project phases. These
station locations and alignment are shown in Figure 11. Each station will include level boarding, real-time arrival information, ticket vending machines, substantial branding, benches, and snow melt, similar to that of the Silver Line. Renderings of stations / running-way configurations at three locations along the corridor are shown in Figures 12 and 13. In addition, Figure 14 illustrates the project timeline to date as well as the anticipated revenue operations date of Spring 2019.

The service will operate every 6 minutes and will operate for more days per week and for more months per year than the current Route 50 and 51 service. This improved service level will accommodate increasing demand from GVSU students and encourage local residents to consider transit as an attractive daily alternative to driving.

The primary objectives of the Laker Line are as follows:

- Provide additional corridor capacity to reduce overcrowding.
- Create high-capacity service with room to accommodate additional transit trip-making in the future.
- Support economic revitalization at corridor station locations.
- Increase multi-modal access to key regional destinations, including downtown and the Medical Mile.
- Connect with Silver Line service, providing access to high-capacity transit serving Central Station and Division Street Corridor.
Major Milestone Timeline

Adoption of TMP: June 2012
Successful Millage Increase: May 2011
Phase 1 Service Improvements: January 2012
Phase 2 Service Improvements: August 2012
Silver Line Service Begins: August 2014
Adoption of Fare and Service Policy: July 2015
Phase 3 Service Improvements: January 2016
Phase 4 Service Improvements: July-August 2016
Route Flag Installations: Fall 2016
CNG Facility: Spring 2017
Smart Card Program: Winter 2017
Completion of Laker Line: Spring 2019
Delivery of final Replacement CNG Buses: Fall 2020