Northern Arizona Intergovernmental Public Transportation Authority

# Flagstaff

## Regional Five-Year and Long Range Transit Plan

FINAL REPORT

MAY 2013

# FLAGSTAFF REGIONAL FIVE-YEAR AND LONG RANGE TRANSIT PLAN

# *FINAL REPORT*

*Adopted by the NAIPTA Board of Directors on May 15, 2013*

*Prepared for*

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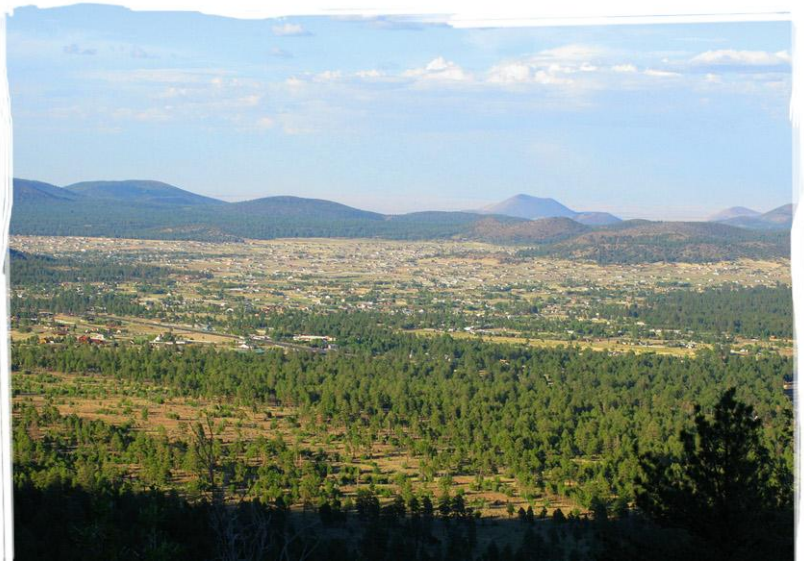


# EXECUTIVE SUMMARY

The Flagstaff Regional Five-Year and Long Range Transit Plan (Transit Plan) proposes a long-term vision for Flagstaff's regional public transportation system and identifies and establishes a short-, mid-, and long-term service plan; funding plan; and implementation plan. Planning period horizons are:

- Short-term planning period: Years 1 to 5
- Mid-term planning period: Years 6 to 10
- Long-term planning period: Years 11 to 20

## Existing Transit Service

### Mountain Line Fixed-Route Service

Mountain Line's current service area lies within the city limits of Flagstaff and the Northern Arizona University (NAU) campus. The system operates six local fixed routes from 6:00 AM to 10:00 PM on weekdays (Route 5 stops service at 9:00 PM on weekdays and does not operate on weekends) and from 7:00 AM to 8:00 PM on Saturdays and Sundays. A seventh fixed-route service, Mountain Link, is described in more detail below.

### Mountain Link

Mountain Link (Route 10), which began service in 2011, provides frequent (bus rapid transit) service between Woodland Village, NAU, and downtown Flagstaff. It operates on weekdays between the hours of 6:30 AM and 10:30 PM. On weekends and holidays, it operates between the hours of 7:15AM and 8:30 PM. On weekdays, the service operates every ten to 15 minutes and on weekends every 40 minutes. Much of the route through the NAU campus follows a dedicated transit way open only to buses, bicycles, and pedestrians.

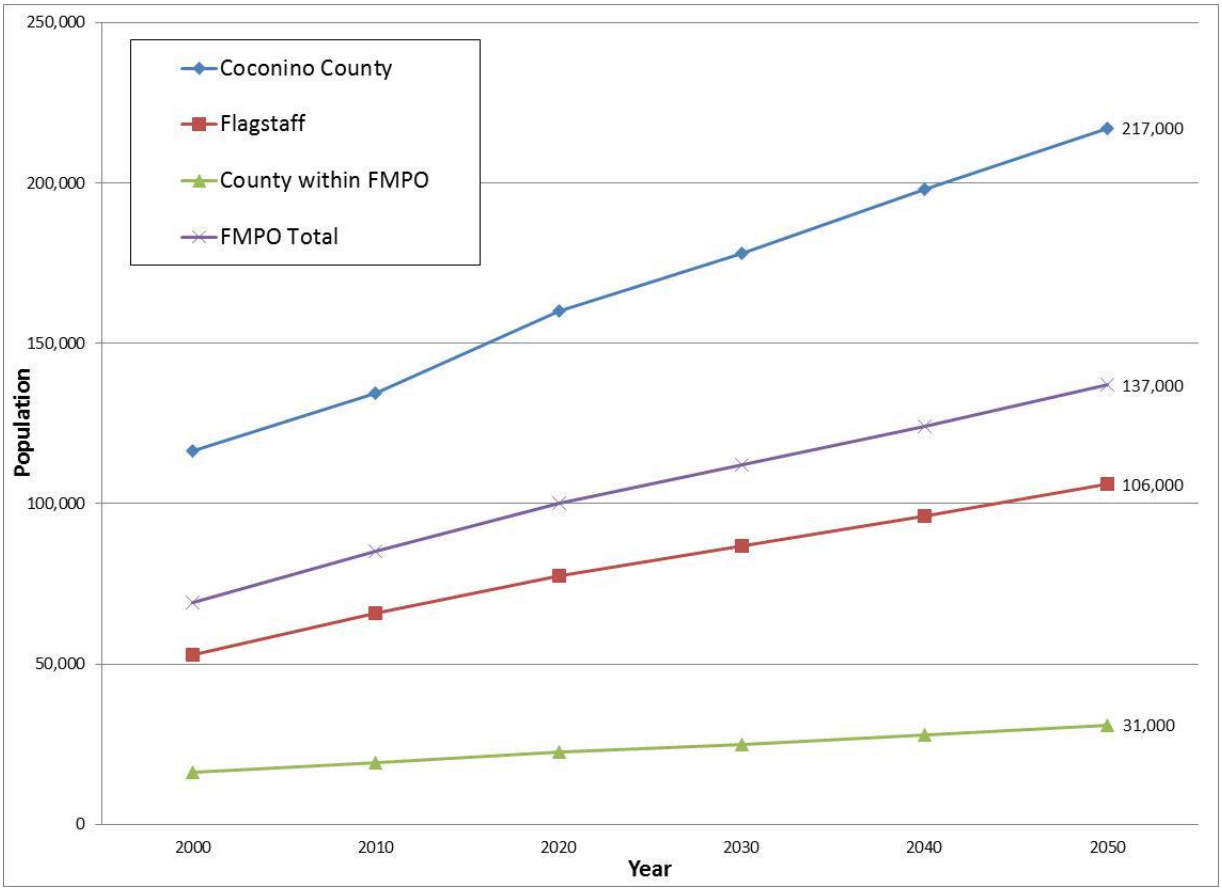
### Mountain Lift Paratransit

NAIPTA also operates a demand-response service, Mountain Lift (formerly VanGo), that provides on-demand service for persons who are disabled and are unable to use Mountain Line services. Mountain Lift provides service within City of Flagstaff limits.

## Demographics

The 2010 US Census shows a population of 65,870 for the City of Flagstaff and an additional 29,281 people in unincorporated Coconino County within the Flagstaff Metropolitan Planning Organization (FMPO) boundaries. By the year 2050, the City of Flagstaff is projected to grow to more than 100,000 people and the FMPO region to grow to 137,000 people.

**Figure E1. Coconino County, City of Flagstaff, and FMPO Population Growth and Projections**




Source: Arizona Rural Policy Institute

## A Track Record of Success

In 2005, Coconino County (as operator of the transit system) completed the Operational Audit and Five-Year Transit Plan for Flagstaff (2005). The 2005 Plan outlined a series of comprehensive service improvements, such as a rapid bus service between NAU and downtown Flagstaff, line re-routings, and other service efficiencies. In 2006, the Northern Arizona Intergovernmental Public Transportation Authority (NAIPTA) was formed to provide a regional approach to transit in and around Flagstaff.

NAIPTA was formed as a partnership of Coconino and Yavapai counties; the cities of Flagstaff, Sedona, and Cottonwood; and NAU.

NAIPTA staff has successfully implemented several of the 2005 Plan recommendations, including implementing Mountain Link rapid bus service in 2011. The following table summarizes these recommendations and their implementation status.

**Table E1. 2005 Five-Year Transit Plan Recommendations and Current Status**

| RECOMMENDATION | STATUS |
|---|---|
| Operations and Administration | |
| Implement a high-frequency core circulator service connecting Woodlands Village with the NAU campus and downtown. | Implemented as Route 10, Mountain Link, in 2011. Mountain Link served over 90,000 passengers in October 2012. |
| Develop a "transit-oriented corridor" along Fourth Street in Sunnyside. | The Regional Plan identifies the Fourth Street corridor as an activity center. The Transit Plan recommends extension of Route 10 along Fourth Street. |
| Add a new high-frequency service connecting East and West Flagstaff via Route 66 and Sunnyside. | Partially implemented; Route 7 began in 2008 to serve Sunnyside via Woodlands Village, Butler Avenue, and the Walmart Supercenter. The transit plan recommends extending Route 10 to the Flagstaff Mall. |
| Implement new demonstration (peak-only) commuter service to Doney Park/Kachina Village. | Not implemented. Transit Plan recommends vanpool commuter service to Kachina Village/Doney Park. |
| Implement a vanpool program. | The Transit Plan recommends vanpool commuter service to Kachina Village and Doney Park. |
| Build a new transit center in downtown Flagstaff. | Opened in 2008 near the intersection of Phoenix Avenue and Mikes Pike. |
| Move Mountain Line and VanGo operations to a new maintenance, operations, and administration facility. | Mountain Line and Mountain Lift (VanGo) moved to a new facility (3773 N. Kaspar Drive) in 2009. The Transit Plan recommends expansion of the facility. |
| Technology | |
| Create a new user-friendly, updated website. | Completed; TransLoc provides real-time Mountain Line and Mountain Link information. |
| Install LED destination signs on fixed-route buses. | Installed. |
| Update fareboxes with new automatic fare collection system. | Not implemented. |

Building upon the implementation success of the 2005 Plan, the Flagstaff Regional Five-Year and Long Range Transit Plan charts the next steps that will be taken to improve transit service over the next 20 years.

## Long-Term Vision for Transit Service in the Greater Flagstaff Area

### Why Do We Need a Vision?

In most metropolitan areas bus transit is a publicly provided service, similar to police, fire, and water services. However, there is one significant difference between transit and those other public services; transit is the only one whose use is truly discretionary. Residents do not have many viable options should they choose not to use the public water system or police/fire services, but residents do have viable options when it comes to using public transit service. These options include:

- Driving their own car.
- Getting a ride from somebody else.
- Riding a bicycle.
- Walking.

In a perfect world, if money were not an issue, transit systems would be designed to meet everyone's needs. A transit system would operate 24 hours per day, seven days per week, and 365 days per year. It would operate very frequently, at least every 3 to 4 minutes all day long. Hundreds of routes would operate up and down almost every single street.

Unfortunately, the amount of funding available to build and maintain a system is always a major issue for public transit agencies; thus, funding becomes a critical factor in determining the design and operation of a transit system. Choices and tradeoff's must be made by those overseeing transit.

### Which Way To Go? The Extreme Ends of the Vision/Role Continuum

In some communities the role of transit is to function simply as a lifeline service, providing basic—albeit very limited—mobility to those who truly have no other options. A system like this is designed to have a large amount of network coverage, but the routes operate very infrequently and/or service is limited to just a few days per week.

On the other end of the continuum are communities like San Francisco that have adopted a "Transit First" policy. A significant amount of resources are channeled to transit so that it becomes the preferred mode for getting around town (i.e., if you are going somewhere that is too far to walk, you will turn to transit before you get in a car). Routes tend to operate very frequently, service is plentiful in all areas, and the network functions as a grid (promoting more point-to-point trips).

## What Are Some Options for a Transit Vision?

A visioning workshop was conducted with NAIPTA staff and stakeholders in June 2012. Based on discussion and feedback generated from the visioning workshop, and subsequent discussion with NAIPTA staff and the study team, three long-range vision alternatives for transit in the Flagstaff region were developed.

### *Core Areas Vision*

**Core Areas Vision**

Public transit service will be planned to maximize ridership, efficiency, and productivity in core areas of the city. Mountain Line, supported by a strong pedestrian and bicycle network, will serve as the first choice for mobility in core areas within the city such as Downtown/NAU/Flagstaff Medical Center (FMC), Sunnyside, and the area around the Flagstaff Mall. These three areas show the most potential for supporting effective public transit and are consistent with activity centers being considered in the current update to the Flagstaff Regional Plan.

In certain core areas, such as Downtown/NAU/FMC, Sunnyside, and the Flagstaff Mall, public transit service will be designed and implemented in a manner which allows it (along with walking and bicycling) to become the primary mobility mode for many types of trips. It may be possible for people who live in one of these three core areas to forgo having a car at all. The key takeaway from this vision is that it provides a high level of service to those areas of Flagstaff that generate significant transit demand. Areas not conducive to transit or having very little potential for transit ridership would likely not be served by fixed-route transit.

### *City Neighborhoods Vision*

**City Neighborhoods Vision**

Transit service will be spread out so that nearly everyone living in the city is within 3/4-mile of basic transit service. The objective is to maximize geographic coverage within city limits, with a specific emphasis on serving those who depend on Mountain Line for transportation.

This vision focuses on extending the geographic reach of transit so that most people in the city have access to at least basic and limited level of transit service. Additional resources will be used to provide services to people who do not currently have ready access to transit service and to those who depend on it for transportation (e. g., people without a vehicle, people who cannot drive, the elderly, etc.). Core areas such as Downtown/NAU, Sunnyside, and the Flagstaff Mall will not get additional service, but transit routes may serve University Heights, the homeless shelter, the YMCA, Continental, Clark Homes, among others.

### *Regional Vision*

**Regional Vision**

Transit service will maximize geographic coverage of the system, including extending basic commuter service to outlying areas. Dependent upon availability of resources from appropriate sources, service could be provided to Doney Park, Kachina Village, Bellemont, and areas along I-40 between Bellemont, Williams, the Twin Arrows Casino, and Winslow.

This vision focuses on extending the geographic reach of transit so that more people in the region have access to at least a basic and limited level of service. Additional resources will be used to extend new routes and services into less densely populated communities such as Kachina Village, Doney Park, Bellemont, and areas along I-40 between Williams and Winslow. Core areas such as Downtown/NAU, Sunnyside, and the Flagstaff Mall will not get additional service, but outlying areas will be pulled into the transit network, opening up mobility options for people who do not currently have ready access to transit service.

### Public Input on Priorities and Vision

The vision alternatives were presented to the public for their input in September 2012. The purpose of the public outreach was to obtain input on the transit vision alternatives and priorities for transit in the greater Flagstaff area. The results of the public input show that the Core Area vision received the highest ratings. However, public input also demonstrated the following priorities:

- "Expand city coverage."
- "Provide regional service."
- "Fast cross-town travel."
- "Run buses later at night."

Considering public input on the priorities, the study team recognized that in addition to providing high-quality service in core areas, providing geographic coverage and regional service are also high priorities. As such, the study team and NAIPTA staff recommended a hybrid approach to a preferred vision to best meet the competing objectives expressed by the public. A hybrid vision includes elements of each of the vision alternatives – Core Areas, City Neighborhood, and Regional Service. A hybrid approach guided development of short-, mid-, and long-term service plans.

## Service Plans

Based on public and stakeholder input, service plans were developed for fixed-route services for NAIPTA over the short- (next five years), mid- (five-10), and long-term (10-20 year) time horizons. The service plans are based on the hybrid vision recommendation. The mid- and long-term service plans also introduce "mobility and supplemental services."

The service plans identify several route numbering changes to better reflect various Mountain Line and Mountain Link service types. The table below summarizes route number service changes across the plans.

**Table E2. Proposed Mountain Line and Mountain Link Route Number Changes**

| | Current Route Number | Proposed Route Number |
|---|---|---|
| Mountain Link | Route 10 | Route 1 (Crosstown Rapid)<br>Route 10 (Woodlands-NAU Link) |
| Productivity Services | Route 2<br>Route 4<br>Route 66 | Route 11<br>Route 12<br>Route 15 (Short-Term Only) |
| Coverage Services (Neighborhood Connectors) | Route 3<br>Route 5<br>Route 7 | Route 100<br>Route 200<br>Route 300<br>Route 400 (Mid- and Long-Term)<br>Route 500 |

## Short-Term Service Plan (Year 1 to Year 5)

The short-term service plan describes how Mountain Line and Mountain Link will transform over the next five years. Service criteria for the short-term service plan include:

- Introducing a cross-town rapid bus service with frequencies of 20 minutes or better.
- Establishing a plan that allows seamless transition from the existing route network.
- Enhancing service to new areas.

Under the short-term service plan, the Mountain Line system sees several major changes including the introduction of new services and elimination of others. The majority of services that exist today are preserved. In addition, some new areas within the City of Flagstaff are offered new service. Key changes in the short-term include the following:

- Route 10 (Mountain Link) is extended to Flagstaff Medical Center and across town to Sunnyside with a terminus at the Flagstaff Mall Transfer Center.
- Route 4 is supplemented with a clockwise-running service, providing bi-directional Route 4 service with a combined service frequency of 20 minutes.
- Route 3, Route 7, and Route 66 are eliminated and replaced with portions of new Routes 200 (Plaza Vieja, West Route 66) and 300 (Sunnyside and Flagstaff Mall).
- Route 100 is introduced to provide service to Sunnyside, Little America, Switzer Canyon Drive, City Hall and the Thorpe Park area.
- Route 200 is introduced to replace portions of Route 66 and 7. Route 200 is introduced to serve destinations along Route 66 connecting West Route 66 neighborhoods to the Fourth Street area. Route 200 also serves a portion of Industrial Drive. In addition Route 200 will now serve Plaza Vieja.
- Route 300 is introduced to service Sunnyside, Christmas Tree, and extends to the Flagstaff Mall.
- Route 5 is express service and is renumbered to Route 500 to complete the “100s” numbering scheme for neighborhood services.

- Routes 15 is introduced and provides service between the Downtown Transfer Center, NAU, and CCC with service frequencies of 20 minutes during the peak. [1]

### Mid-Term Service Plan (Year 6 to Year 10)

Under the mid-term service plan, there are several significant service routing and route numbering changes starting with Mountain Link.

- Mountain Link service is split into two separate services. The new Crosstown Rapid (Route 1) maintains service provided by Route 10 in the Short-Term Plan with an alignment change on Milton Road (it no longer operates on NAU's campus). NAU Link (Route 10) is modified as a campus-specific Mountain Link service that connects Woodlands Village and NAU. NAU Link service would terminate to the south of the railroad tracks and would stop near the Downtown Transfer Center.
- Route 4 is eliminated and is replaced with an expanded Route 12 (Route 15 in the Short-Term) and extended Route 11 (formerly Route 2 in the Short-Term) service.
- Route 11 provides a one-seat ride from Ponderosa Trails via NAU and Butler Avenue through Sunnyside and finally the Flagstaff Mall.
- Route 400 is introduced to provide coverage services in University Heights and Ponderosa Trails.

### Long-Term Service Plan (Year 11 to Year 20)

The long-term service plan presents a vision for the Mountain Line system in twenty years. The long-term plan builds upon the transit network introduced in the mid-term plan and introduces a major service improvement connecting Flagstaff to its airport. Service could also be provided to Williams and Winslow, if available funding is identified and in partnership with other agencies.

It should be emphasized that the elements included in the long-term service plan are fluid and flexible. It is anticipated that elements in the long-term plan will change as the City of Flagstaff evolves and grows. However, this plan presents a transit network that serves as a foundation for future growth.

To ensure recommendations in the long-term are cost effective, the City of Flagstaff should ensure all new development and transportation projects throughout the City are planned and constructed with transit enhancements in mind. These include safe pedestrian and bicycle amenities to ensure access to bus stops and roadway network enhancements that allow transit to move efficiently throughout the City. Transit service should be a key element in the City's "transportation fabric." Enhancements that improve the transit network will be beneficial to the City's transportation network in whole.

### Basic Mobility and Supplemental Services

A wide variety of transportation programs could fall under the basic mobility and supplemental services category. These programs form the foundation of NAIPTA's transportation offerings and either 1) provide the most basic level of "safety net" service for individuals requiring mobility in Flagstaff or 2) offer a service that helps support transit services either directly or indirectly. Basic Mobility and Supplemental Services include:

[1] Route 15 service is contingent on funding.

- Taxi voucher program.
- Volunteer driver programs.
- Vanpool and carpooling.
- Carsharing (traditional or peer to peer).
- Bicycle sharing program.
- Guaranteed ride home (GRH) program.

Additional funding is not available for basic mobility and supplemental services in the short-term service plan. However, it is recommended that self-organizing services such as employer vanpools be established as a pilot program as an initial step if administrative setup resources are available. These types of programs can be very cost-effective and provide specific transportation needs without any NAIPTA operational cost.

In the mid- and long-term, resources for basic mobility and supplemental services are expanded and it is recommended that these services be coordinated under a new "Mobility Manager" position. These resources are not specified for any specific transportation solution at this time, but are intended to be used for transportation demand management or transportation programs that help enable mobility through alternative mechanisms. These funds can be considered "seed funding" for a variety of potential programs as listed above.

## 20-Year Service Summary

The table below provides a summary of key service changes in the short-, mid-, and long-term service plans.

**Table E3. Summary of Short-, Mid- and Long-Term Service Plans**

| | Short-Term<br>Year 1 to Year 5 | Mid-Term<br>Year 6 to Year 10 | Long-Term<br>Year 11 to Year 20 |
|---|---|---|---|
| Mountain Link | ▪ Route 10 extends to Flagstaff Mall. | ▪ Crosstown Rapid (Route 1) shifts to Milton Road and Route 11 (formerly Route 2) provides service through NAU and Bow and Arrow neighborhood.<br>▪ Route 10 (NAU Link) shifts back to serve NAU campus and Woodlands Village. | ▪ Crosstown Rapid (Route 1) extends beyond Woodlands Village to the Flagstaff Pulliam Airport. |
| Mountain Line | ▪ Route 4 provides bi-directional service.<br>▪ Route 3, Route 7 and 66 eliminated and replaced with Routes 200 and 300. | ▪ Route 4 replaced with segments of Route 11 and new Route 12.<br>▪ Route 400 introduced in University Heights and Ponderosa Trails. | ▪ No changes. |

| | Short-Term<br>Year 1 to Year 5 | Mid-Term<br>Year 6 to Year 10 | Long-Term<br>Year 11 to Year 20 |
|---|---|---|---|
| Mountain Line (continued) | ▪ Route 15 provides service between NAU and CCC (contingent on funding).<br>▪ Route 100 provides service to Sunnyside, Little America, City Hall and Thorpe Park.<br>▪ Routes 200 and 300 provide new services in Sunnyside area.<br>▪ Route 5 renumbered to Route 500. | ▪ However, alignment and routing still to be determined. | |
| Mountain Lift | ▪ Service will expand based on Mountain Link/Line services. | ▪ Service will expand based on Mountain Link/Line services. | ▪ Service will expand based on Mountain Link/Line services. |
| Commuter Services | ▪ Vanpool services may be introduced to Doney Park and Kachina Village, contingent upon identification of funding. | ▪ Vanpool service to Doney Park and Kachina Village may be improved to daily commuter bus service. Daily commuter bus service may also be introduced to Williams and Winslow, contingent upon available funding and partnership with other agencies. | ▪ No changes. |
| Supplemental Services | ▪ Introduction of vanpool services.<br>▪ Initiate roles and responsibilities of Mobility Manager. | ▪ Rollout of other supplemental services via Mobility Manager as possible. | ▪ Rollout of other supplemental services via Mobility Manager as possible. |
| Estimated Plan Service Hours | 64,833[2] | 97,619[3] | 102,550[3] |
| Estimated Plan Service Miles | 989,698 | 1,100,297 | 1,156,454 |

[2] Does not include proposed Route 15

[3] Includes 4,800 hours for "Supplemental Services"

| | Short-Term Year 1 to Year 5 | Mid-Term Year 6 to Year 10 | Long-Term Year 11 to Year 20 |
|---|---|---|---|
| Peak/Base Vehicles in Service (Fixed Route) | 17 / 12[4] | 24 / 15 | 25 / 15 |

## Capital Projects

Implementation of the service plans will require investment in new facilities and infrastructure. The following projects are proposed:

- A new East-side Transit Center near the Flagstaff Mall.
- Expanded maintenance and operations facility.
- Arterial street transit improvements.
- Park-and-ride lots in Doney Park and Kachina Village.

Capital projects are defined at a planning level in Chapter 6. Where appropriate, preliminary concepts are presented and a planning-level cost estimate is provided.

### East-side Transit Center

One of the proposed capital projects is a new East-side Transit Center. The schematic in Figure E2 shows a conceptual layout for a new East-side Transit Center. Key features of this concept are:

- Area: 83,000 square feet, 1.9 acres.
- Parking spaces: 53 spaces, electric vehicle charging station.
- Bus parking: 6 bays.
- Amenities: comfort station, six bus shelters.
- Construction cost: $1.15M.

[4] Does not include vehicles for Route 15 service

**Figure E2. East-side Transit Center**

## Maintenance and Operations Center

In 2009, NAIPTA opened a new Transit Operations Center located at 3773 N. Kaspar Drive, Flagstaff. The new transit operations center resulted from rehabilitation of an existing car dealership that was originally constructed in 1975. The rehabilitation and construction served as Phase 1 of a two-phase build-out. Phase 1 included new offices and covered parking for a maximum fleet size of 13 fleet vehicles. Phase 2 improvements were to include a bus storage facility, wash bay, and fuel island. The Transit Operations Center was jointly funded by the Federal Transit Administration (FTA) and the City of Flagstaff. Funds were not available to complete Phase 2 improvements.

Covered storage is important to maintain for NAIPTA's fleet given the widely variable climate in Flagstaff. With only 13 covered spaces, and a fleet of 21 fixed-route vehicles and 8 demand response vehicles, the Transit Operations Center is in need of expansion. As NAIPTA continues to expand and begins to implement the new and expanded transit service, the need for an expanded bus storage facility will become more critical. An expanded facility is necessary to maintain the NAIPTA fleet.

An expanded operations and maintenance center will enable NAIPTA to better maintain their fleet consistent with FTA's State of Good Repair (SGR) initiative. Left uncovered and outdoors, cold weather can delay bus service as maintenance crews address issues caused by the sub-freezing temperatures such as frozen brake lines and ice removal. In the summer months, the bright summer sun reduces the paint life span.

### Arterial Street Improvements

#### Bus Rapid Transit (BRT)

BRT improvements are proposed as long-term capital projects along Beaver Street, San Francisco Street, and Milton Road, subject to further planning and engineering study. Each of these routes will serve Route 10 and the future Route 1. BRT improvements along the proposed Route 1 and Route 10 may be implemented in segment phases or along the full length of the corridors.

BRT improvements may include partly or entirely dedicated transit lanes to improve patron travel time and efficiency of buses within these corridors. Dedicated transit lanes would enable buses to bypass heavily congested areas.

#### BRT Master Plan

It is recommended that NAIPTA, FMPO, ADOT, and the City of Flagstaff collectively develop a BRT Master Plan. The purpose of the BRT Master Plan will be to identify, define, and prioritize BRT improvements. The master plan should review BRT opportunities, needs, and constraints for the entire length of Route 1 and Route 10. The master plan should address:

- BRT corridor identification and selection with particular focus on Milton Road, Beaver Street, and San Francisco Street in downtown Flagstaff.
- Ridership assessment of potential BRT corridors.
- Proposed station locations and conceptual station improvements.
- Area-wide parking strategies.
- Pedestrian improvements and crossings.
- Traffic signal priority, including traffic signal priority on BRT corridors including at downtown intersections.
- BRT corridor implementation plan.
- Probable capital, construction, and operating/maintenance costs.
- Funding mechanisms.

### Park-and-ride Lots

Park-and-ride lots are proposed, contingent upon funding availability, in Doney Park and Kachina Village to support vanpool and daily commuter as proposed in the mid-term service plan.

## Financial Plan

A twenty-year Financial Plan was developed for NAIPTA's operational and capital programs. The key assumptions that serve as the building blocks for the next twenty years include:

- The financial plan time horizon is described in terms of year of the plan (i.e., year one, two, etc.).
- In 2008, the City's transit tax was renewed through City election. This service plan assumes that the current tax (set to expire in 2020) will be renewed through the duration of this planning process (year 20) and potentially increase in 2018 (see below).

- Additional funding resources will be available to expand the current transit system by year five. These currently unknown resources are assumed to increase 50% above baseline by year five. This increase in resources will be available through the duration of the planning process (through year 20).
- Inflation (CPI) will remain in the range of 2 and 3%.
- For years with service hour increases, ridership is assumed to increase in proportion to service hours based on 2014 estimated passengers per service hour. For other years, it is assumed ridership increases between 1. 5% and 3%, annually.
- Passenger fares are based on 2014 estimated average fare per passenger, revenues increase at CPI (however, dates of fare increases are not explicitly specified).
- For estimating purposes, contributions from NAU are assumed to increase at CPI, annually.
- Mountain Line will continue receiving funds from a variety of federal sources including FTA Section 5307 and Small Transit Intensive Communities (STIC) funds. Given the passage of the "Moving Ahead for Progress in the 21st Century Act" (MAP-21), changes will undoubtedly occur in the types and levels of federal funding available to fund transit operations and capital improvements for NAIPTA. For purposes of the financial plan, any major vehicle capital expenses are covered at 80% by federal funding.
- Federal funding after year six of the plan is assumed to increase at 2% per CPI.
- No fare increase is assumed in the short-term, but fare increases are likely in the mid-term and beyond. Furthermore, express and other "premium" services such as commuter services will be offered at a higher price. Additional information regarding fare increases is found later in this chapter.
- Capital costs include existing schedule of bus and van replacement costs in addition to new buses needed to meet service plan and 20% spare ratio (spare ratio target is above 25%). Commuter services are anticipated to use a combination of existing Hybrid 35' vehicles in combination with 30-35' medium-duty vehicles.
- Vehicle replacement is based on a 12-year fixed route vehicle and seven-year medium-duty vehicle replacement cycle.
- Vehicle costs are held consistent with existing NAIPTA vehicle cost estimates.
- Shelters, pads and installation costs are consistent with NAIPTA projections, levels plus inflation after year seven.
- Facility costs and transfer center costs include existing costs between FY2013-2014; no additional costs are included at this time.
- No additional route construction costs are included at this time.
- Additional marketing costs and communication efforts related to service changes are not included at this time.
- County contributions for regional and commuter services are not included as revenue sources at this time.

- Operational costs are based on service plan estimated service hours, using an estimated cost per hour of $70.53 for fixed-route services and $85.00 for commuter services. This does not include administrative costs (calculated separately based on NAIPTA's estimates).
- Short-term cost estimates include Route 15, which is suggested to be funded as a joint effort including NAIPTA and local educational institutions. Those revenues are not included in the plan at this time.

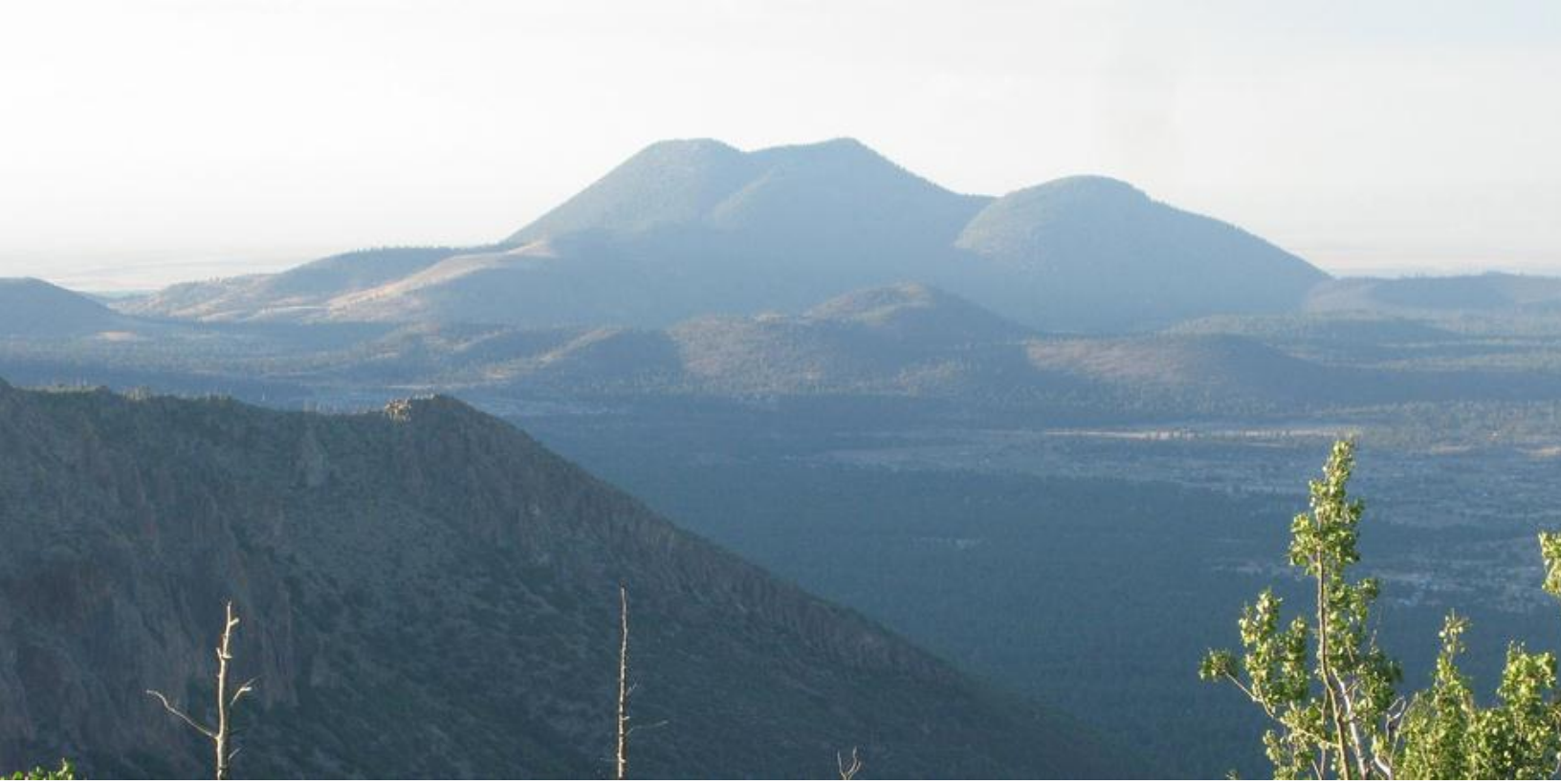
The tables in Chapter 8 provide a high-level estimate of financial expenditures and revenues over the lifespan of the plan.

## Implementation Steps

Chapter 9 discusses the next steps to implement key elements for the short-term service plan beginning in July 2013. This includes key elements distributed over the following categories:

- Administration.
- Service operations.
- Public information.
- Vehicle procurement and capital expenditures.
- Plans and studies.

A summary of short-term implementation steps is provided in Table 9-2.



# 1.0 INTRODUCTION

The Flagstaff Regional Five-Year and Long Range Transit Plan (Transit Plan) was developed to serve the growing transportation needs of residents and visitors to the greater Flagstaff area.

The Transit Plan was developed in a collaborative effort by the Northern Arizona Intergovernmental Public Transportation Authority (NAIPTA) with funding provided by the Arizona Department of Transportation (ADOT) Multimodal Planning Division (MPD) through the Planning Assistance for Rural Areas (PARA) program. The PARA program utilizes federal funds to provide transportation planning assistance to communities throughout Arizona.

The Transit Plan proposes a long-term vision for Flagstaff's regional public transportation system and establishes short-, mid-, and long-term service plans; a funding plan; and implementation plan. Planning period horizons are:

- Short-term planning period: Year 1 to Year 5.
- Mid-term planning period: Year 6 to Year 10.
- Long-term planning period: Year 11 to Year 20.

### The Flagstaff Regional Five-Year and Long Range Transit Plan Builds Upon Past Success

Public transit in the Flagstaff region has become an integral element of the transportation system. Since operations commenced in August 2011, Mountain Link (Route 10) has provided a valuable service to residents, students, and visitors. In October 2013, Mountain Link served over 90,000 passengers. *The recommendations in the Flagstaff Regional Five-Year and Long Range Transit Plan capitalize on the success of Mountain Link and chart a course for expansion.*

### The Flagstaff Regional Five-Year and Long Range Transit Plan Positions Public Transit in Flagstaff for the Future

Public transit in the Flagstaff region is positioned to grow and expand its influence to serve more residents and visitors. The City of Flagstaff and Coconino County are currently developing the Flagstaff Regional Plan 2030: Place Matters (Regional Plan). Proposed elements of the Regional Plan are supportive of and will enhance transit service in the Flagstaff region.

## FLAGSTAFF REGIONAL PLAN 2030

***Even now—and more so in the future—transit will play a central role in general mobility, congestion management, and economic development.***

**— Flagstaff Regional Plan 2030: Place Matters**

Proposed elements of the DRAFT Regional Plan are supportive of and will enhance transit service in the Flagstaff region. Regional Plan themes that support and encourage public transit include:

- Mix land uses.
- Take advantage of compact development design.
- Create a range of housing opportunities and choices.
- Create walkable neighborhoods.
- Strengthen and direct development towards existing communities.
- Provide a variety of transportation choices.

The Transit Plan takes steps to implement many of the policies proposed in the Regional Plan. Regional Plan Policy T2. 4 states that "Dedicated transit ways will be considered where appropriate." Consistent with this policy, the Transit Plan proposes expansion of Route 10 and recommends consideration of transit-only lanes on Milton Road, Beaver Street, and San Francisco Street. Park-and-ride lots and vanpool service are proposed to serve Doney Park and Kachina Village, consistent with other Regional Plan goals (T5. 7, T5. 3, and T5. 4).

### The Flagstaff Regional Five-Year and Long Range Transit Plan was Developed Collaboratively with Citizens and Stakeholders of the Greater Flagstaff Area

The Flagstaff Regional Five-Year and Long Range Transit Plan was developed through the collaborative efforts of NAIPTA, ADOT, City of Flagstaff, FMPO, NAU, stakeholders, and citizens of the greater Flagstaff area. The Transit Plan establishes transit services responsive to the current public transit needs of citizens and visitors, while presenting a bold vision for the future role that transit will play in the greater Flagstaff region.

The Flagstaff Regional Five-Year and Long Range Transit Plan Final Report contains the following chapters:

Chapter 1 – Introduction

Chapter 2 – Existing Transit Service, Demographics, and Projections

*This chapter provides an overview of existing conditions for transit service in the greater Flagstaff area.*

Chapter 3 – Long-Term Vision for Transit Service in the Greater Flagstaff Area

*This chapter describes three visions that were presented to the public for their input, and the preferred vision that was selected as a result of the public input.*

Chapter 4 – Public Input on Priorities and Vision

*This chapter describes the public outreach that was conducted to obtain input on the vision for public transit in the greater Flagstaff region.*

Chapter 5 – Service Plan

*This chapter presents the proposed changes in fixed-route services for NAIPTA over short- (next five years), mid-(five-10), and long-term (10-20 year) time horizons.*

Chapter 6 – Capital Projects

*This chapter recommends new capital projects. These include new park and ride lots, a new East-side Transit Center, and transit-only lanes.*

Chapter 7 – Technological Review

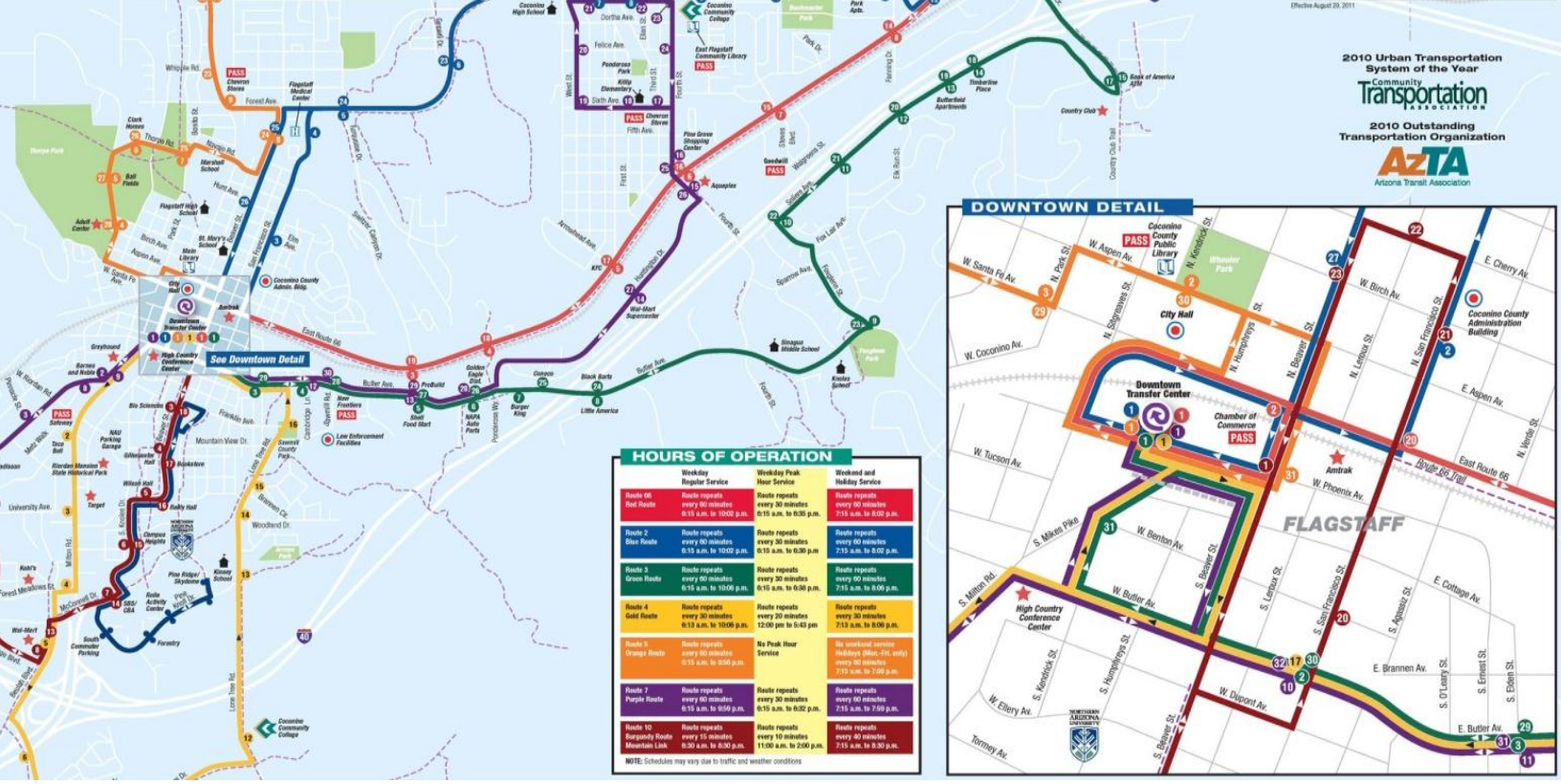
*This chapter recommends new technologies for consideration by NAIPTA.*

Chapter 8 – Financial Plan

*This chapter projects operating and capital costs for a twenty-year planning period.*

Chapter 9 – Implementation Steps

*This chapter highlights major milestones and implementation activities.*




# 2.0 EXISTING TRANSIT SERVICE, DEMOGRAPHICS, AND PROJECTIONS

This chapter provides an overview of existing conditions in the Flagstaff region.

## 2.1 Description of Service Area

Flagstaff, Arizona is located approximately 150 miles north of Phoenix at the northern terminus of Interstate 17 (I-17) as it intersects Interstate 40 (I-40). Flagstaff is the largest city in Coconino County. The elevation of Flagstaff is approximately 7,000 feet.

The City of Flagstaff city limits encompass 63. 4 square miles.[5] According to the 2010 US Census, the Flagstaff urbanized area encompasses approximately 34. 8 square miles. [6] The Flagstaff urbanized area includes portions of Doney Park and Kachina Village, but does not include uninhabited lands, such as US Forest Services lands that are within the City of Flagstaff incorporated limits.

The 2010 US Census identified a population of 65,870 for the City of Flagstaff and an additional 29,281 people in unincorporated Coconino County but within the FMPO boundaries. The 2010 total population of Coconino County was 134,421.

Flagstaff is home to the main campus of Northern Arizona University (NAU), which has an enrollment of nearly 17,500 students. Enrollment at the NAU Flagstaff campus is projected to increase to 25,000 students within the 20-year planning horizon of the Transit Plan.

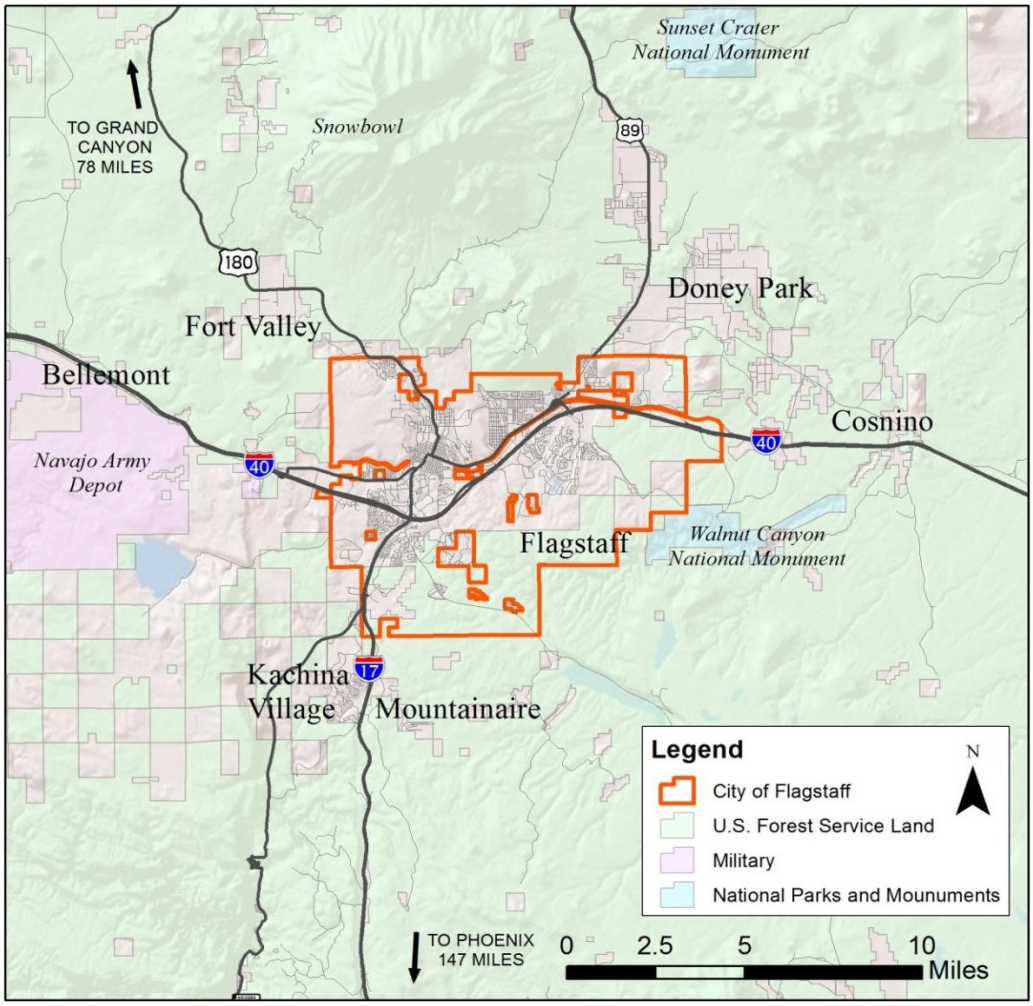
[5] http://quickfacts.census.gov/qfd/states/04/0423620.html

[6] An urbanized area is defined as "a densely settled core of census tracts and/or census blocks that meet minimum population density requirements."

Major transportation features in Flagstaff include Route 66, US (United States Route) 89, US 89A, US 180, and the Burlington Northern Santa Fe Rail Line. Flagstaff serves as the epicenter of multiple tourist destinations, including Sedona (30 miles to the south on US 89A), Arizona Snowbowl (10 miles north on US 180), Grand Canyon National Park (80 miles northwest on US 180), Sunset Crater Volcano National Monument (20 miles north on US 89), and Walnut Canyon National Monument (10 miles east on I-40).

Several smaller communities are in close proximity to Flagstaff along I-17, I-40, and US 89. Kachina Village and Mountainaire are small urban areas of approximately 3,000 people six miles south of Flagstaff along I-17. Williams, with approximately 3,000 people, is located 30 miles west of Flagstaff along I-40. Bellemont, located 11 miles west of Flagstaff along I-40, has approximately 400 people[7]. Doney Park-Timberline-Fernwood, with approximately 9,000 people, is located northeast of Flagstaff along US 89. The study area is depicted in Figure 2-1.

**Figure 2-1. Study Area**




[7]http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_10_SF1_P1&prodType=table

## 2.2 Existing Transit Service

Mountain Line Transit began operating in October 2001, after Flagstaff voters passed a local transit tax. Prior to the introduction of Mountain Line, Coconino County operated a transit system called Pine Country Transit, which was primarily a social services provider with just three fixed routes in addition to private medical transportation. By 2004, Mountain Line had quadrupled the ridership of Pine Country Transit with 1,600 daily riders.

In 2005, Coconino County (as operator of the transit system) completed the Operational Audit and Five-Year Transit Plan (2005). This 2005 Plan outlined a series of comprehensive service improvements, such as a rapid bus service between NAU and downtown Flagstaff, line re-routings, and other service efficiencies. In 2006, NAIPTA was formed to provide a regional approach to transit in and around Flagstaff. NAIPTA was formed as a partnership of Coconino and Yavapai counties; the cities of Flagstaff, Sedona, and Cottonwood; and NAU.

NAIPTA staff has successfully implemented several of the 2005 Plan recommendations, including implementing Mountain Link rapid bus service in 2011. Table 2-1 summarizes these recommendations and their implementation status.

**Table 2-1. 2005 Five-Year Transit Plan Recommendations and Current Status**

| RECOMMENDATION | STATUS |
|---|---|
| Operations and Administration | |
| Implement a high-frequency core circulator service connecting Woodlands Village with the NAU campus and downtown. | Implemented as Route 10 (Mountain Link) in 2011. |
| Develop a "transit-oriented corridor" along Fourth Street in Sunnyside. | The Regional Plan identifies the Fourth Street corridor as an activity center. The Transit Plan recommends extension of Route 10 along Fourth Street. |
| Add a new high-frequency service connecting East and West Flagstaff via Route 66 and Sunnyside. | Partially implemented; Route 7 began in 2008 to serve Sunnyside via Woodlands Village, Butler Avenue, and the Walmart Supercenter. The transit plan recommends extending Route 10 to the Flagstaff Mall. |
| Implement new demonstration (peak-only) commuter service to Doney Park/Kachina Village. | Not implemented. Transit Plan recommends vanpool commuter service to Kachina Village/Doney Park. |
| Implement a vanpool program. | The Transit Plan recommends vanpool commuter service to Kachina Village and Doney Park. |
| Build a new transit center in downtown Flagstaff. | Opened in 2008 near the intersection of Phoenix Avenue and Mikes Pike. |
| Move Mountain Line and VanGo operations to a new maintenance, operations, and administration facility. | Mountain Line and Mountain Lift (VanGo) moved to a new facility (3773 N. Kaspar Drive) in 2009. The Transit Plan recommends expansion of the facility. |

| RECOMMENDATION | STATUS |
|---|---|
| Technology | |
| Create a new user-friendly, updated website. | Completed; TransLoc provides real-time Mountain Line. |
| Install LED destination signs on fixed-route buses. | Installed. |
| Update fareboxes with new automatic fare collection system. | Not implemented. |

In 2002 and 2010, Mountain Line was named Transit System of the Year by the Community Transportation Association of America. In 2008, Flagstaff voters approved five propositions related to expanding funding for Mountain Line. The most basic of these propositions, Proposition 401, asked voters to extend the transit sales tax through 2020. The other propositions, 402-405, authorized the purchase of hybrid buses, the implementation of Mountain Link service, extensions of bus service into new areas, and increased service frequency.

Mountain Line now operates as a fixed-route bus service with seven routes serving most neighborhoods in the community. Major transfer points are located at the Downtown Transfer Center and the Flagstaff Mall.

### 2.2.1 Overview of NAIPTA Services

#### Mountain Line Fixed-Route Service

Mountain Line's current service area lies within the city limits of Flagstaff and the NAU campus. The system operates six local fixed routes from 6:00 AM to 10:00 PM on weekdays (Route 5 stops service at 9:00 PM on weekdays and does not operate on weekends) and from 7:00 AM to 8:00 PM on Saturdays and Sundays. A seventh fixed-route service, Mountain Link, is described in more detail in the following section.

Routes 2, 3, 7, and 66 operate at 60-minute frequencies all day with 30-minute peak hour headways. Route 4 operates as a one-way loop every 30 minutes and every 20 minutes during peak periods. Route 5 has headways of 60 minutes all day and does not operate on weekends.

All routes meet for a timed transfer on the hour at the Downtown Transfer Center. Three of the routes (Routes 2, 3, and 66) connect at the Flagstaff Mall Transfer Center in the northeast part of the city. The system provides multiple other opportunities for transfers. For instance, passengers can also transfer between Route 7 and Mountain Link at the True North Dentistry stop in the Woodlands Village area, Route 4 and Mountain Link at Walmart, Route 2 (northbound and southbound) and Mountain Link in downtown Flagstaff, and Routes 3, 4, and 7 at Butler Avenue and San Francisco Street.

The route system is structured primarily to provide coverage to most areas in the city; however, the lower density residential areas south of I-40 have limited fixed-route service.

Additional information about Mountain Line routes can be found in Table 2-2. Ridership and productivity figures for each fixed route operated by Mountain Line are provided in Table 2-3. The data presented reflects NAIPTA boardings as recorded in April 2012 by Mountain Line operators and scheduled service hours are based on scheduled April 2012 service hours. The data shows that over 40% of all Mountain Line boardings occur on Route 10 (Mountain Link) with the remainder of boardings split relatively evenly between Routes 66, 2, 3, 4, and 7. Route 5 has the least number of boardings, accounting for approximately 3% of systemwide boardings. In terms of passengers per hour, Route 10 has the highest measure with nearly 70 passengers per hour, followed by Route 4 and Route 66. [8]

**Table 2-2. Mountain Line Route Characteristics**

| Route | Hours of Operation (Simplified – February 2013) | Off-Peak Frequency (minutes) | Peak Frequency (minutes) | Service Hours (April 2012) | Service Miles (2012 - Scheduled) | Key Destinations |
|---|---|---|---|---|---|---|
| 2 / Blue | 6:00 AM-10:00 PM Monday-Friday<br>7:00 AM-8:00 PM Sat, Sun, Holidays | 60 | 30 | 726 | 99,739 | Downtown, Flagstaff Medical Center, East Flagstaff |
| 3 / Green | | 60 | 30 | 729 | 129,485 | Butler Avenue, Fox Glenn, Country Club Drive, Flagstaff Mall |
| 4 / Gold | | 30 | 20 | 471 | 43,694 | South Flagstaff, Milton Road retail, Coconino Community College (CCC) |
| 5 / Orange | 6:00 AM-8:00 PM Monday-Friday<br>7:00 AM-8:00 PM Holidays | 60 | 60 | 314 | 32,513 | Cheshire neighborhood, FMC, Clark Homes |
| 7 / Purple | 6:00 AM-10:00 PM Monday-Friday<br>7:00 AM-8:00 PM Sat, Sun, Holidays | 60 | 30 | 727 | 69,900 | Woodlands Village, Aquaplex, Sunnyside |
| 66 / Red | | 60 | 30 | 726 | 108,488 | Flagstaff Mall, Route 66 retail |

[8] To put Route 10's productivity into perspective, many urban routes in portions of the San Francisco Bay Area do not achieve productivity approaching 70 passengers/hour.

| Route | Hours of Operation (Simplified – February 2013) | Off-Peak Frequency (minutes) | Peak Frequency (minutes) | Service Hours (April 2012) | Service Miles (2012 - Scheduled) | Key Destinations |
|---|---|---|---|---|---|---|
| 10 / Mountain Link | 6:30 AM-10:30 PM Monday-Friday<br>7:15 AM-8:30 PM Sat, Sun, Holidays | 15 (Monday-Friday)<br>40 (Sat, Sun, Holidays) | 10 | 1071 | 102,166 | NAU, Woodlands Village, Downtown, Southside |

**Table 2-3. Mountain Line Weekday Productivity by Route**

| Route | Boardings (Apr 2012) | % of System | Service Hours (Apr 2012) | % of System | Passengers per Hour |
|---|---|---|---|---|---|
| Route 66 | 20,682 | 12% | 726 | 16% | 28. 5 |
| Route 2 | 18,961 | 11% | 726 | 16% | 26. 1 |
| Route 3 | 13,063 | 8% | 729 | 16% | 17. 9 |
| Route 4 | 21,942 | 13% | 472[9] | 9% | 38. 0 |
| Route 5 | 5,439 | 3% | 314 | 8% | 17. 3 |
| Route 7 | 19,048 | 11% | 727 | 16% | 26. 2 |
| Route 10 | 71,303 | 42% | 1071 | 21% | 66. 6 |

*Source: NAIPTA, April 2012*
*Route 4 includes Route 4 and Route 4P. Boardings include NAIPTA ridership counts for April 2012 as conducted by Mountain Line and Mountain Lift operators.*

## Mountain Link

Mountain Link (Route 10), which began service in 2011, provides frequent (bus rapid transit) service between Woodland Village, NAU, and downtown Flagstaff.

Mountain Link operates on weekdays between the hours of 6:30 AM and 10:30 PM. On weekends and holidays, it operates between the hours of 7:15AM and 8:30 PM. On weekdays, the service operates every ten to 15 minutes and on weekends every 40 minutes. Much of the route through the NAU campus follows a dedicated transit way open only to buses, bicycles, and pedestrians. Mountain Link is free to students and Ecopass holders and operates fare-free at all NAU campus stops, enabling all-door boarding. This practice helps performance at several on-campus locations that have very high levels of boardings and alightings. A fare is required of all other patrons at all times.

Route 10 also features a number of rider-friendly amenities and innovations, such as real-time information at bus stops and the ability to track bus location and arrival times online and on the TransLoc real-time transit app.

[9] 472 service hours is based on scheduled 2012 service hours divided by 12

Figure 2-2 on page 11 is a Mountain Line and Mountain Link system map (April 2012).

### Mountain Lift Paratransit

NAIPTA also operates a demand-response service, dubbed Mountain Lift (formerly VanGo), that provides on-demand service for persons who are disabled and are unable to use Mountain Line services. As shown in Figure 2-3, Mountain Lift provides service in an area consistent with Mountain Line service (i.e., within ¾ mile of existing Mountain Line/Mountain Link bus stops).

To utilize Mountain Lift services, an individual must go through a standard screening process. This includes completing an eligibility application, participating in an interview with Mountain Lift staff, and potentially testing for functional abilities.

Mountain Lift operates daily Monday through Friday between 6:15 AM and 10:15 PM; it operates Saturday and Sunday between 7:15 AM and 8:15 PM. To guarantee service on Mountain Lift, patrons must make reservations the day prior to service needs. Same-day reservations are also acceptable when space is available. Clients can book service up to one week in advance of their travel needs. Mountain Lift fares are $2.25 per one-way trip. If Mountain Lift services are required outside the standard service area (but within the City of Flagstaff city limits), the fare is $5.50 per trip. This service is only available for eligible Mountain Lift clients.

In addition to accessible bus services provided by Mountain Lift, eligible Mountain Lift riders may also use the Flagstaff Taxi Voucher Program.

**Figure 2-2. Mountain Line Transit – System Map**

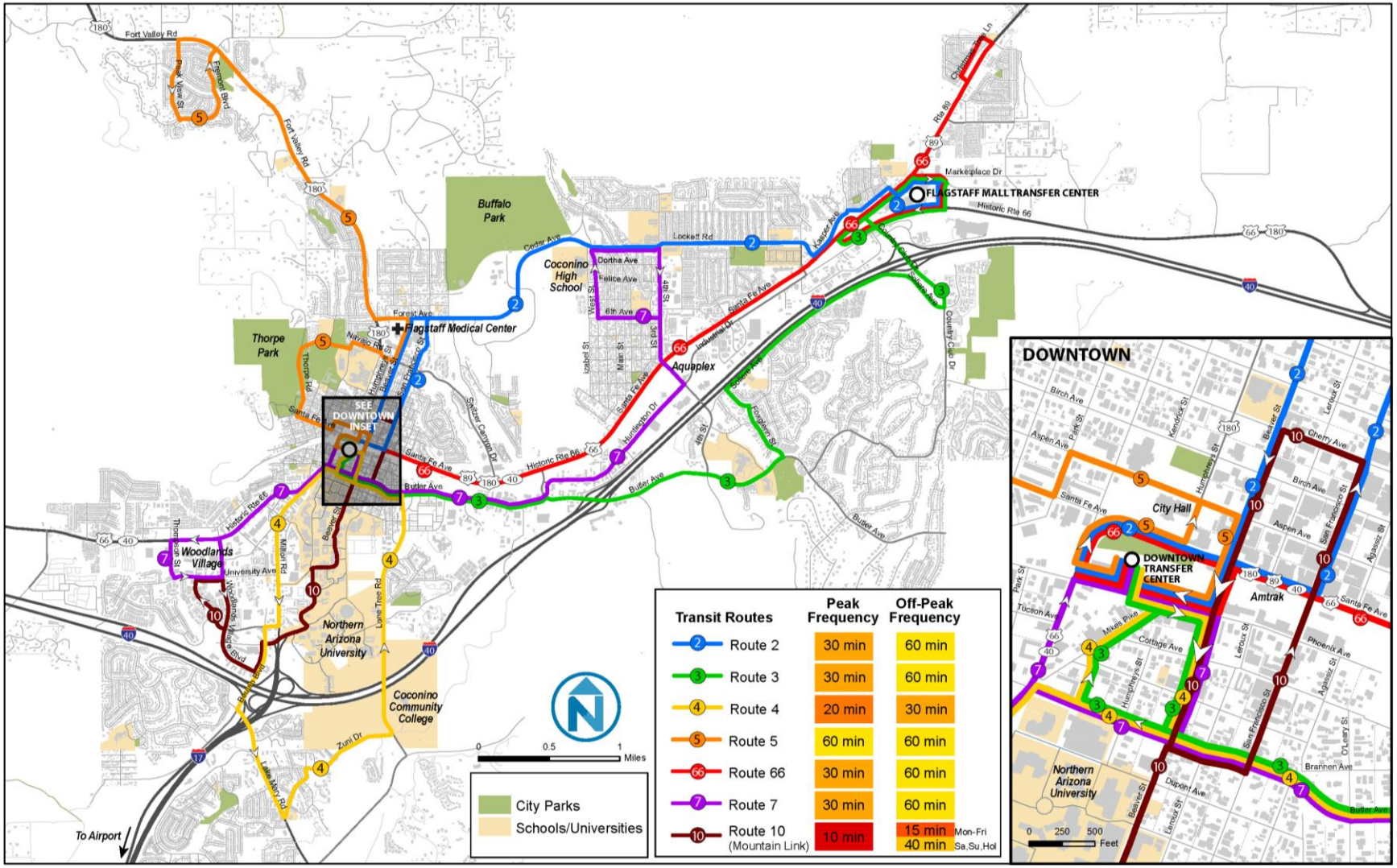
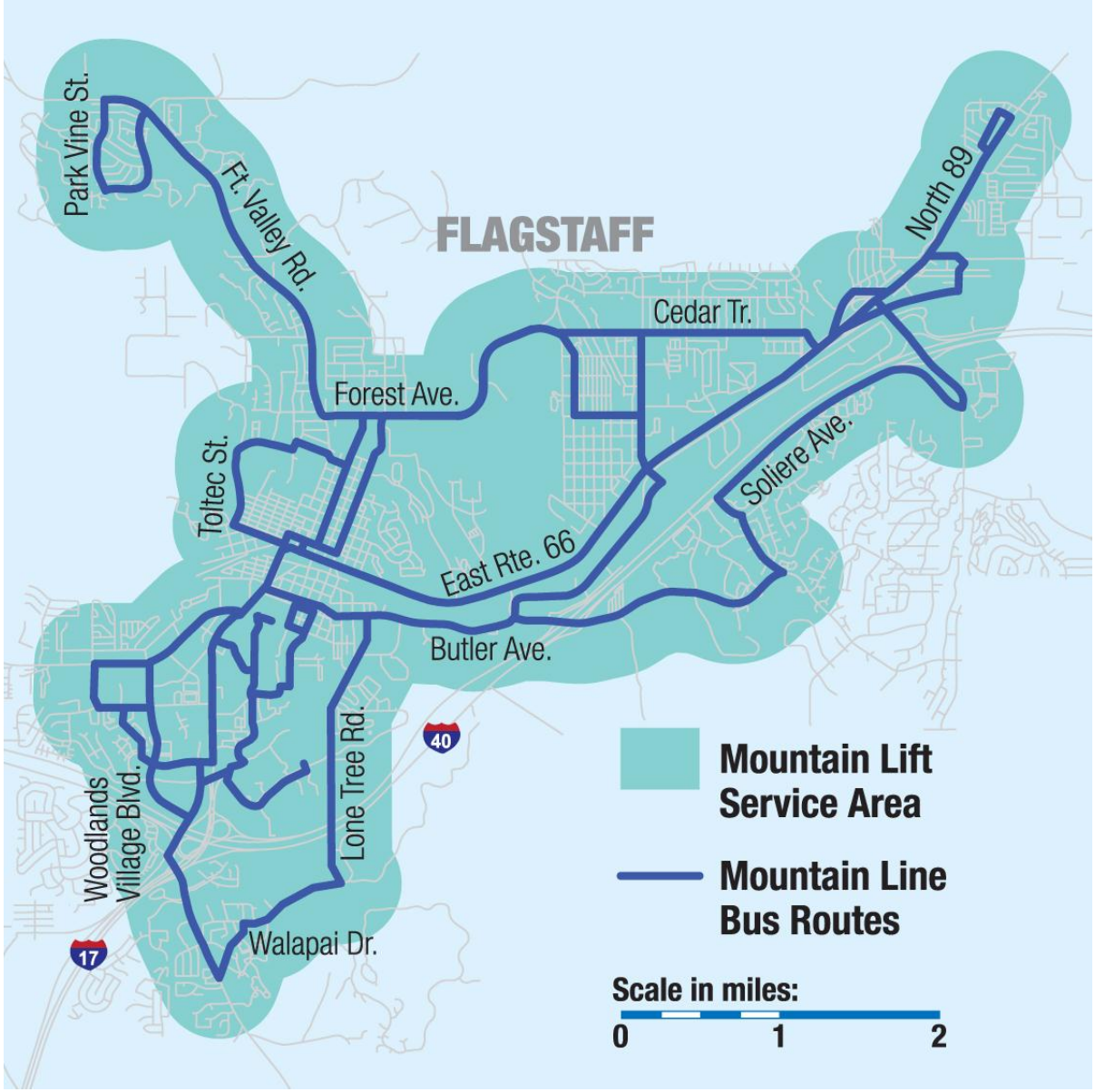


**Figure 2-3.** Mountain Lift Service Area




Source: NAIPTA

## Fixed-Route Fare Policy

Single-ride adult fares are $1.25. Seniors, persons with disabilities, and children (seven to 17 years old) are charged a base fare of $0.60. Discounted fare passes are available in weekly or monthly increments. Passes can be purchased online, by phone, or at a number of locations around Flagstaff including Safeway stores, NAU and CCC campuses, city-county libraries, and the O'Leary Street Market.

Day passes, introduced in 2009 to replace paper transfers, allow for unlimited rides on a single day, and may be purchased upon boarding a Mountain Line or Mountain Link bus. Day passes sell for $2.50.

NAU students, faculty, and staff ride Mountain Link for free using a University-issued JacksCard ID. Students transferring to other Mountain Line buses must pay the full adult fare.

In 2011, NAIPTA implemented a trial program for elementary, middle, and high school students. The program, which was designed to span one school year from September 1, 2011 to August 31, 2012, offered an unrestricted Mountain Line student bus pass that could also be used on weekends and outside school hours for a flat fee of $153. In 2012, NAIPTA started offering year-long college passes for all Mountain Line routes that are available for purchase.

**Table 2-4. Mountain Line and Mountain Link Fixed-Route Fares**

| | Cash Fare | Day Pass | Month Pass |
|---|---|---|---|
| Adult (over 17 years old) | $1.25 | $2.50 | $34.00 |
| Child (seven to 17 years old) | $0.60 | $1.25 | $17.00 |
| Child (0 to six years old) | Free | N\A | N\A |
| Senior Citizen (Age 60 and older), Persons with Disabilities, and Medicare Card Holders | $0.60 | $1.25 | $17.00 |

### 2.2.2 Fixed-Route Fleet and Facilities

#### Downtown Transfer Center

The Downtown Transfer Center (seen in Figure 2-4) is located near the intersection of Phoenix Avenue and Mikes Pike. The transfer center, which was constructed in 2008, replaced the Humphreys Transfer Center (now the site of the High Country Conference Center) and serves as a hub for all Mountain Line services.

At the transfer center, Routes 2 and 66 board along Phoenix Avenue just adjacent to the transfer center; Routes 3, 4, 5, and 7 board along an off-street center island. The transfer center features two shelters and is surrounded by parking. Mountain Link buses may be accessed by a short walk (<100 yards) to a shelter at the corner of Beaver Street and Phoenix Avenue.

#### Flagstaff Mall Transfer Center

The current Flagstaff Mall Transfer Center was constructed at East Mall Way and North Marketplace Drive in 2009-2010 to replace the Railhead Transfer Center. This transfer center offers links between Routes 66, 2, and 3, and features a shelter, but it lacks a direct pedestrian connection to the mall.

**Figure 2-4. Downtown Transfer Center**

## Fleet and Facilities

Table 2-5 provides an inventory of NAIPTA's fixed-route fleet. Over the past five years, NAIPTA has progressively replaced its El Dorado fleet with Gillig hybrid buses, which operate cleaner and quieter. The purchase of these buses has been partially funded by sales tax funds generated by Proposition 402 that was passed by Flagstaff voters in 2008. Mountain Link (Route 10) operates Gillig buses exclusively, while the rest of the Mountain Line routes operate a combination of El Dorado and Gillig buses.

The Gillig fleet is equipped with bicycle racks and a hydraulic kneel-down capability. The fleet operates and is maintained out of a bus yard located at 3773 N. Kaspar Drive where NAIPTA's administrative offices are located. NAIPTA also maintains a remote operator break area (Comfort Station), which is located in a refurbished warehouse adjacent to the Downtown Transfer Center.

**Table 2-5. NAIPTA Fixed-Route Fleet**

| Bus # | Model | Year of Manufacture | Bus # | Model | Year of Manufacture |
|---|---|---|---|---|---|
| 5368 | Gillig 35' Hybrid-Electric | 2013 | 5381 | Gillig 35' Hybrid-Electric | 2011 |
| 5369 | Gillig 35' Hybrid-Electric | 2013 | 5382 | Gillig 35' Hybrid-Electric | 2011 |
| 5370 | Gillig 35' Hybrid-Electric | 2013 | 5383 | Gillig 35' Hybrid-Electric | 2011 |
| 5371 | Gillig 35' Hybrid-Electric | 2013 | 5384 | Gillig 35' Hybrid-Electric | 2009 |
| 5372 | Gillig 35' Hybrid-Electric | 2013 | 5385 | Gillig 35' Hybrid-Electric | 2007 |
| 5373 | Gillig 35' Hybrid-Electric | 2013 | 5386 | Gillig 35' Hybrid-Electric | 2007 |
| 5374 | Gillig 35' Clean Diesel | 2012 | 5389 | El Dorado EZ Rider II | 2004 |
| 5375 | Gillig 35' Clean Diesel | 2012 | - | - | - |
| 5376 | Gillig 35' Hybrid-Electric | 2012 | - | - | - |
| 5377 | Gillig 35' Hybrid-Electric | 2011 | - | - | - |
| 5378 | Gillig 35' Hybrid-Electric | 2011 | - | - | - |
| 5379 | Gillig 35' Hybrid-Electric | 2011 | - | - | - |
| 5380 | Gillig 35' Hybrid-Electric | 2011 | - | - | - |

Table 2-6 lists NAIPTA's Mountain Lift, curb-to-curb transportation service for persons with disabilities and other eligible customers. Each of these eight vehicles accommodate 8 to 10 ambulatory individuals and two to three wheelchairs. Five new vehicles were purchased in 2013.

**Table 2-6. NAIPTA Mountain Lift Fleet**

| Vehicle | Year | Type | Age | Life Miles (April 2012) |
|---|---|---|---|---|
| 5558 | 2007 | Ford | 6 | 106,660 |
| 5559 | 2007 | Ford | 6 | 94,548 |
| 5561 | 2010 | Chevy | 3 | 35,100 |
| 5562 | 2013 | Ford | Purchased in January 2013 | - |
| 5563 | 2013 | Ford | Purchased in January 2013 | - |
| 5564 | 2013 | Ford | Purchased in January 2013 | - |
| 5565 | 2013 | Ford | Purchased in January 2013 | - |
| 5566 | 2013 | Ford | Purchased in January 2013 | - |
| | | | **Average** | 29,538 |

## 2.3 Other Transit Service Providers in Flagstaff

### Amtrak

Amtrak's Southwest Chief route travels between Chicago and Los Angeles with a daily stop in Flagstaff at 8:51 PM westbound and 4:36 AM eastbound. From a regional perspective, the Southwest Chief route also stops in Winslow, Williams, and Kingman. Greyhound provides connections for Amtrak passengers from Flagstaff to Phoenix and other parts of the Southwest. In addition, the Grand Canyon Railway provides direct trains from Williams to the Grand Canyon National Park daily from Memorial Day to Labor Day. Flagstaff's historic Amtrak station is located on the southern end of downtown on Route 66 between Leroux Street and San Francisco Street, approximately two blocks from the Downtown Transfer Center.

### Greyhound

Greyhound is a private provider of regional, state, and nationwide bus service. Greyhound operates 10 daily departures from the Flagstaff terminal located at 880 East Butler Avenue near River Run Road. Buses depart Flagstaff from 1:15 AM to 11:00 PM daily.

**Table 2-7. Greyhound Service To/From Flagstaff**

| | Frequency | Number of Daily Runs |
|---|---|---|
| Southbound (to Phoenix, AZ) | Daily | Five |
| Eastbound (to Holbrook, AZ, and Albuquerque, NM) | Daily | Three |
| Westbound (to Kingman, AZ and Las Vegas, NV) | Daily | Two |

### NAU Campus Shuttle Services

NAU's Parking and Shuttle Service operates two bus routes on the NAU campus. The primary shuttle route travels clockwise in a loop around campus from the Skydome in the southeast part of campus to the Social and Behavioral Sciences (SBS) center (a transfer point among campus routes and Mountain Link), up Knoles Drive and Beaver Street to a loop at the Health and Learning Center on Franklin Avenue and San Francisco Street. A second route, the Rapid Ride Express Shuttle, operates from SBS up Knoles Drive to Old Main where it makes a short loop for a return trip. Rapid Ride operates as a northbound pick-up/drop-off service only Monday through Friday from 8:00 AM to 3:00 PM. Regular NAU shuttle service hours are 7:00 AM to 11:00 PM on Monday through Thursday, and 7:00 AM to 5:00 PM on Fridays. Buses operate at three-minute headways from 7:00 AM to 4:00 PM, 15-minute headways from 4:00 PM to 6:00 PM, and 30-minute headways from 6:00 PM to 11:00 PM. [10]

Passengers are not charged a fare for riding the campus buses. Campus Shuttle Services provided transportation for 1. 1 million riders during the 2010-2011. It is estimated that NAU operates approximately 48,000 hours of service in a calendar year based on known service span and estimated number of vehicles in operation. At peak service, NAU operates 18 shuttle vehicles. Campus shuttles operate limited service during the summer semester and winter break.

### Private Shuttle Services

Private shuttle services provide daily service between Flagstaff and regional communities. The Arizona Shuttle connects Flagstaff and Camp Verde, Phoenix Metro Center, and Phoenix Sky Harbor Airport; Flagstaff and Sedona; and Flagstaff and the Grand Canyon. Flagstaff Shuttle and Charter provides service to Grand Canyon, Flagstaff, Sedona, Phoenix and Las Vegas.

## 2.4 Current Demographics

The 2010 US Census shows a population of 65,870 for the City of Flagstaff and an additional 29,281 people in unincorporated Coconino County within the FMPO boundaries, an increase of nearly 25% from the 2000 US Census. As depicted in Table 2-8 and Figure 2-5, Flagstaff and the FMPO area have grown at approximately the same rate as Arizona as a whole, but have experienced a significantly higher rate of growth than the United States as a whole.

**Table 2-8. Coconino County, City of Flagstaff, and FMPO Population**

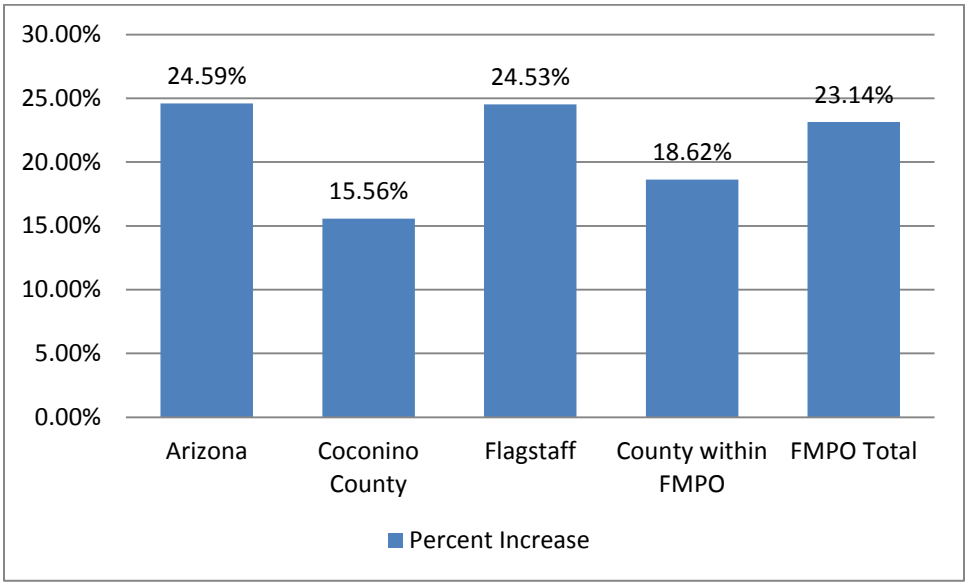
| | 2000 | 2010 | Percent Change |
|---|---|---|---|
| United States | 281,421,906 | 308,745,538 | 9. 7% |
| Arizona | 5,130,632 | 6,392,017 | 24. 59% |
| Coconino County | 116,320 | 134,421 | 15. 56% |
| Flagstaff | 52,894 | 65,870 | 24. 53% |
| County within FMPO | 16,254 | 19,281 | 18. 62% |
| FMPO Total | 69,148 | 85,151 | 23. 14% |

Source: Arizona Rural Policy Institute, US Census[11]

[10] "Headway" is determined by the amount of time between each bus's departure from the Skydome route starting point

[11] http://quickfacts.census.gov/qfd/states/00000.html

**Figure 2-5. Percent Increase in Coconino County, City of Flagstaff, and FMPO Population, 2000-2010**




## 2.5 Demographic Projections

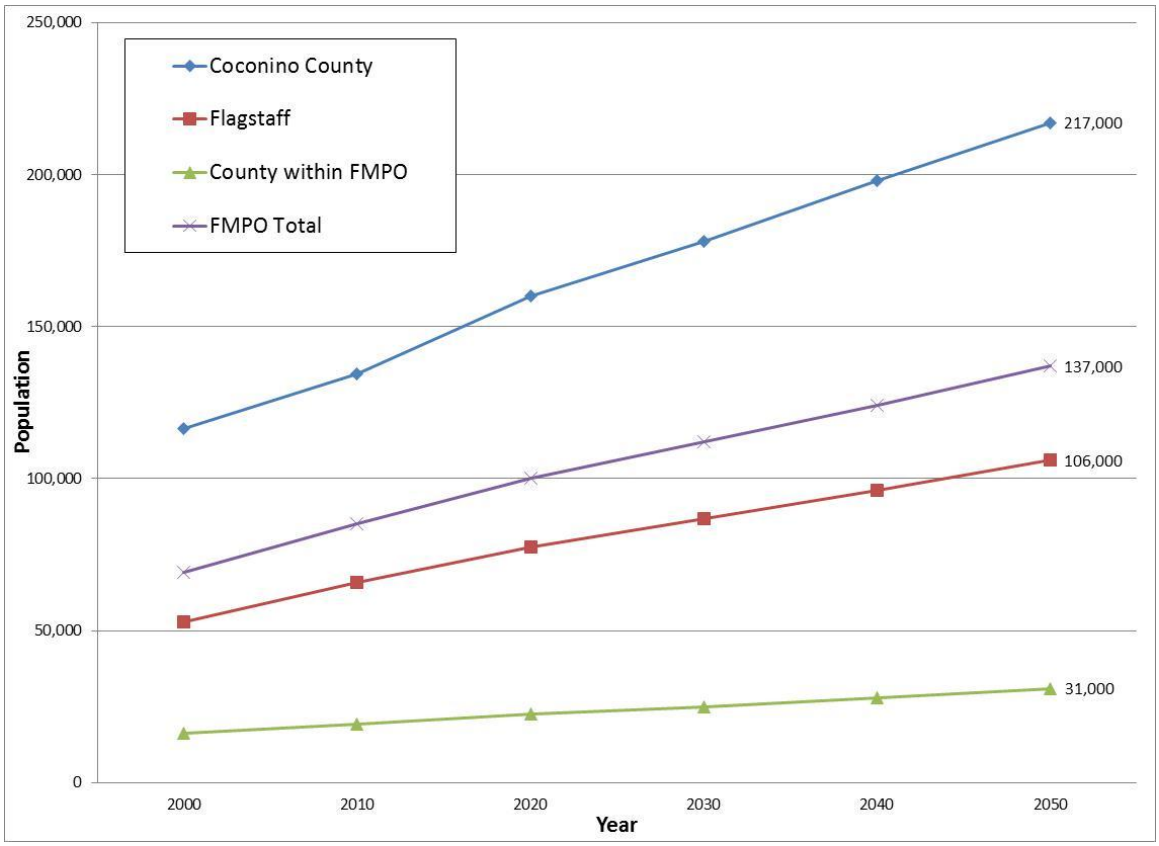
### 2.5.1 Population Growth Projections

In support of the Flagstaff Regional Plan 2030: Place Matters, the Arizona Rural Policy Institute (RPI) at NAU completed a demographic and projections analysis[12] based on 2010 US Census data. Population projections through 2050 are illustrated in Figure 2-6 and Table 2-9.

By the year 2050, the City of Flagstaff is projected to grow to more than 100,000 people and the FMPO region to grow to 137,000 people. RPI projections serve as the basis for extrapolation of population projections for the Flagstaff Regional Five-Year and Long Range Transit Plan's short-, mid-, and long-term planning horizon as displayed in Table 2-10.

[12] Task 1 - Demographic Estimates and Projections, RPI, 2011

**Figure 2-6. Coconino County, City of Flagstaff, and FMPO Population Growth and Projections**




Source: Arizona Rural Policy Institute

**Table 2-9. Coconino County, City of Flagstaff, and FMPO Populations Projections**

| | Historical Population | | Population Projections | | | |
|---|---|---|---|---|---|---|
| | 2000 | 2010 | 2020 | 2030 | 2040 | 2050 |
| Coconino County | 116,320 | 134,421 | 160,000 | 178,000 | 198,000 | 217,000 |
| Flagstaff | 52,894 | 65,870 | 77,500 | 87,000 | 96,000 | 106,000 |
| County within FMPO[13] | 16,254 | 19,281 | 22,500 | 25,000 | 28,000 | 31,000 |
| FMPO Total | 69,148 | 85,151 | 100,000 | 112,000 | 124,000 | 137,000 |

Source: Arizona Rural Policy Institute

[13] Current land use and density effectively limit the FMPO county population 25,000. Land exchanges and/or significant rezonings to higher densities would need to occur in order to exceed a population of 25,000.

**Table 2-10. Population Projections for the Five-Year and Long Range Transit Study Planning Horizons**

| | EXISTING POPULATION | | POPULATION PROJECTIONS | | | | |
|---|---|---|---|---|---|---|---|
| | 2010 | Historical Growth Rate | Short-Term (2018) | Growth Rate | Mid-Term (2023) | Growth Rate | Long-Term (2033) |
| City of Flagstaff | 65,870 | 1. 6% | 75,020 | 1. 0% | 79,965 | 1. 0% | 88,764 |
| FMPO | 85,151 | 1. 6% | 96,836 | 1. 1% | 103,198 | 1. 1% | 114,616 |
| Coconino County | 134,421 | 1. 8% | 154,522 | 1. 0% | 164,951 | 1. 0% | 182,586 |

Source: Arizona Rural Policy Institute, Kimley-Horn and Associates, Inc.

As the region develops and approaches build-out, it is anticipated that the growth rate will flatten, as shown in Table 2-11, due to decreasing availability of land. The Flagstaff region is surrounded by publicly owned lands that limit the land available for expanding development. Additionally, approximately two-thirds of the area's private, developable land is already developed. Based on the estimated populations shown above, it is anticipated that the FMPO will experience a total growth of 52% between 2012 and 2033. Table 2-11 shows the build-out population projections for the Regional Plan proposed land use scenario.

**Table 2-11. Build-out Population Projections for Regional Plan Proposed Land Use Scenario**

| | Regional Plan Proposed Land use Scenario (Scenario D) |
|---|---|
| Current FMPO Population (2010) | 85,151 |
| Additional Population Added at Build-Out (within FMPO) | 71,598 |
| Total Population | 156,749 |

Source: Arizona Rural Policy Institute

### *2.5.2 Enrollment at NAU*

In 2010, 25,000 students were enrolled at NAU, approximately 17,500 of which were attending the Flagstaff Campus. Of the 17,500 students, more than half (57%) lived off-campus. The NAU student population consists of 27% of the overall population of the City of Flagstaff, making it a necessary component of the transit planning process. The RPI Demographic Estimates and Projections report analyzed future enrollment at NAU based on input from the Arizona Board of Regents. An annual growth rate of 1. 92% was used to project the student population growth, which is based on the historical growth rate of the Flagstaff campus. Table 2-12 summarizes the projected NAU enrollment.

**Table 2-12. Historical and Projected Enrollment at Northern Arizona University**

| | 2000 | 2010 | 2020 | 2030 |
|---|---|---|---|---|
| NAU Flagstaff Campus | 14,495 | 17,529 | 25,000 | 25,000 |
| Total Enrollment | 19,964 | 25,204 | 34,000 | 36,000 |

Source: Arizona Rural Policy Institute

### 2.5.3 Flagstaff Regional Plan 2030: Place Matters

The Flagstaff Regional Plan 2030: Place Matters is an update to the current Flagstaff Area Regional Land Use and Transportation Plan (2001). The Regional Plan applies to the 525-square-mile planning area that matches the FMPO area. The Regional Plan serves as the General Plan for the City of Flagstaff and for the County areas; it works in conjunction with the Coconino County Comprehensive Plan and community area plans.

The vision and goals for the Regional Plan involve creating a cohesive and sustainable land use and development pattern that results in a context-sensitive and efficient transportation system. This efficient system will support economic development, multimodal transportation, and improved safety and accessibility.

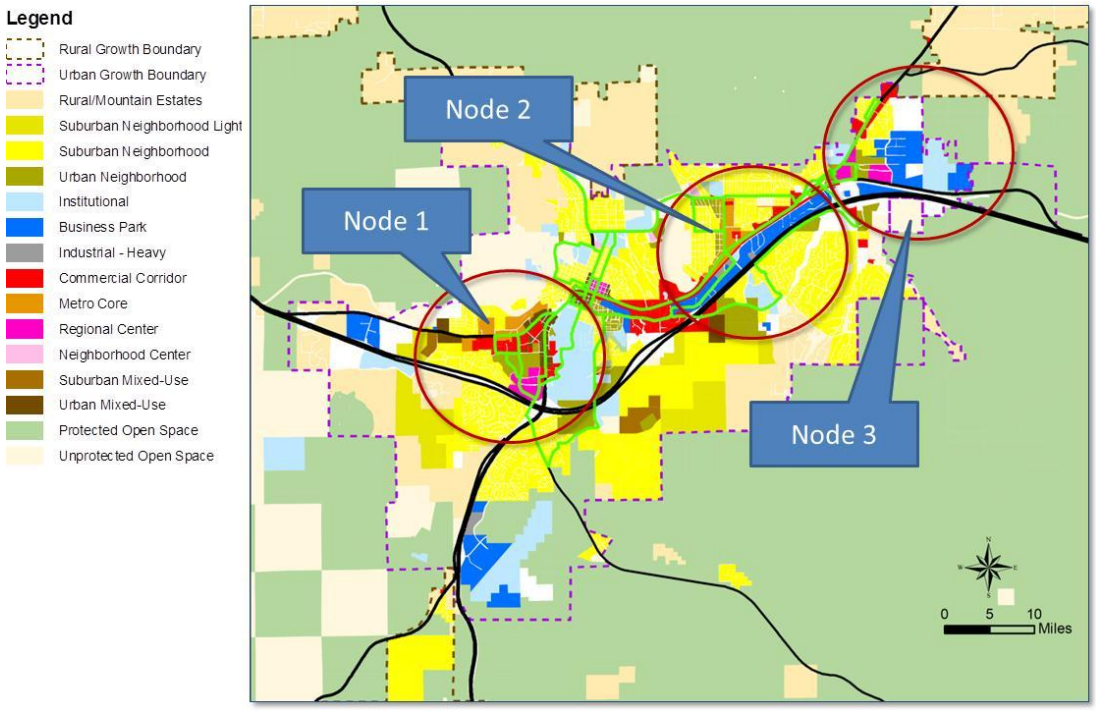
In preparing to analyze and select a preferred land use pattern, three scenarios were initially developed followed by a fourth, the most compact of them all. It is this Scenario D with its three primary nodes that at the time of this report is most supported by Regional Plan Citizens Advisory Committee. Therefore, it serves as the basis for the NAIPTA service plans.

The Regional Plan Scenario D growth element reflects areas of high-density, mixed-use development with the intent to preserve lands on the periphery. While Scenario D projects that a majority of residential growth will occur south of I-40 and will be suburban in nature, the Regional Plan includes a significant level of high-density, mixed-use development along the Milton Road corridor, in downtown Flagstaff, in the Sunnyside neighborhood along Fourth Street, and along Route 66 in east Flagstaff. These areas present new opportunities for transit. Mixed-use activity centers are listed below and illustrated in Figure 2-7.

- Downtown.
- Fourth Street.
- Route 66/US 89/Flagstaff Mall Area.

As development plans for these areas move forward, they should be reviewed for consistency with transit-oriented principles, such as the density of development, mixture of land uses, pedestrian environment, and the cost and availability of parking.

**Figure 2-7. Regional Plan Land Use and Potential Mixed-Use Activity Centers**



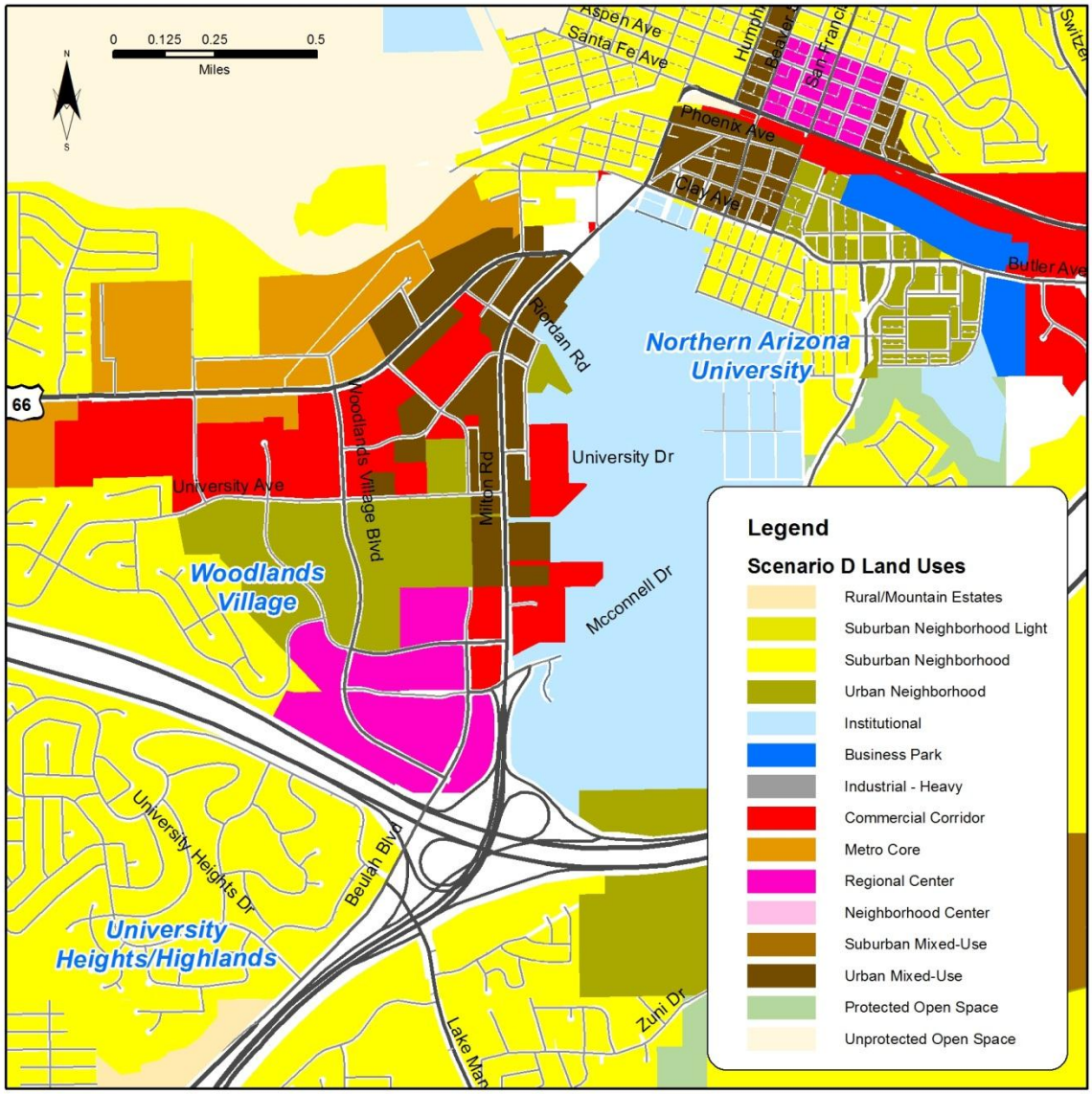

Source: City of Flagstaff, Kimley-Horn and Associates, Inc.

### *2.5.4 Node 1: Milton Road/Woodlands Village/NAU/Downtown*

Node 1 represents the most significant of the potential new mixed-use nodes. This node features urban mixed-use development along Milton Road, Route 66, and downtown Flagstaff. Land uses in Node 1 are illustrated in Figure 2-8. Milton Road was identified in ridership surveys as one of the most congested corridors in the city. In addition, Milton Road is also one of the most active pedestrian corridors in the area, much of which originates at NAU. The Regional Plan encourages land uses in this area to develop to be more conducive to bicycles, pedestrians, and transit. An intensification of land uses in this area could improve the viability of higher frequency bus service connecting this node and corridor to other parts of the city.

Milton Road will require significant streetscape improvements to make it more conducive and accessible to transit riders, pedestrians, and bicyclists. As plans for Milton Road are considered, they should include basic amenities such as bicycle lanes, wider and continuous sidewalks, pedestrian crossings, transit-only lanes, transit signal priority, and bus shelters.

**Figure 2-8. Node 1: Milton Road/Woodlands Village/NAU/Downtown**



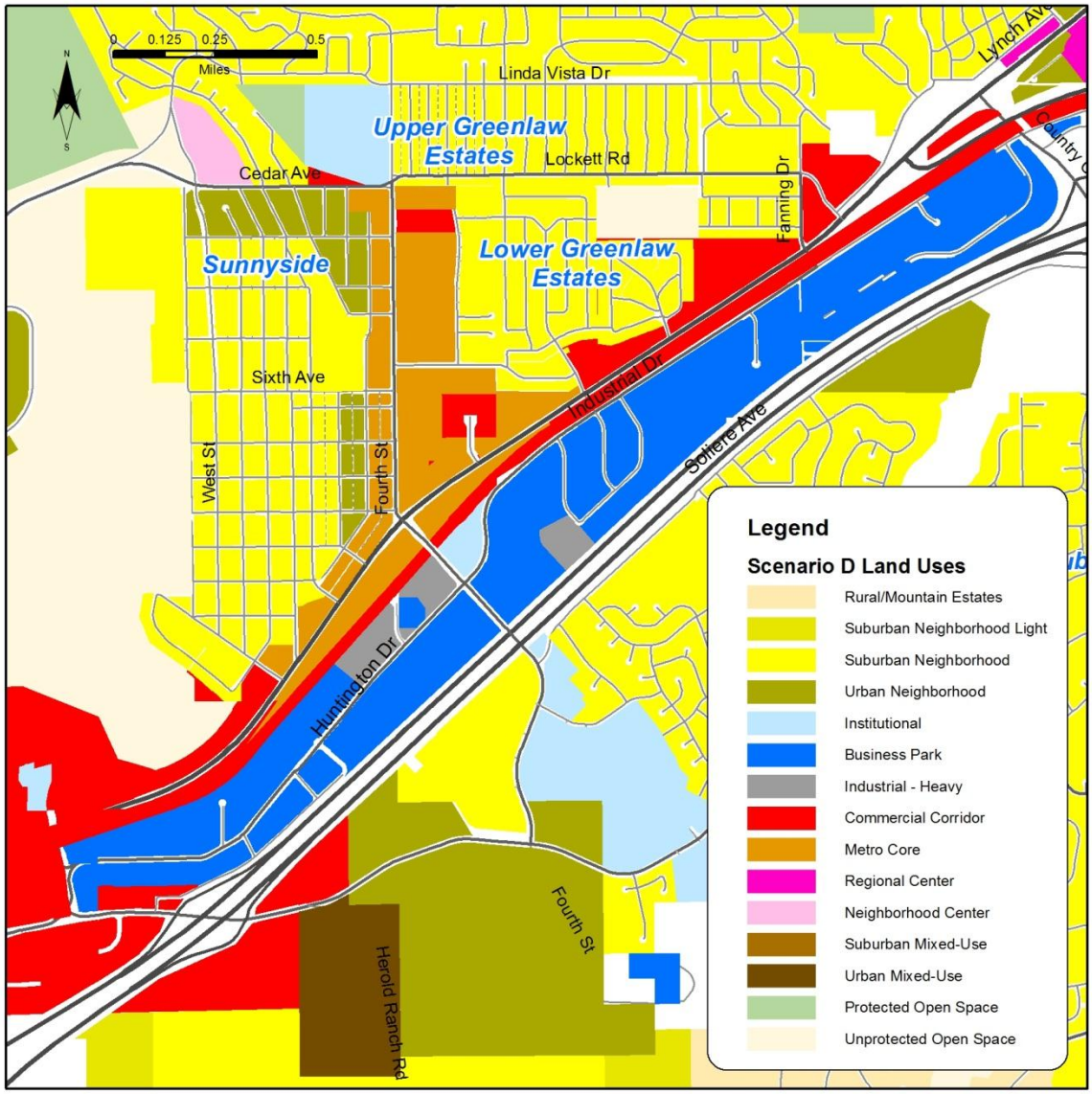

### 2.5.5 Node 2: Fourth Street

Node 2 is roughly focused on the Fourth Street corridor, which serves as "Main Street" for the east Flagstaff area [14] and includes the Sunnyside and Greenlaw neighborhoods.

Land uses, as proposed in the Regional Plan, are illustrated in Figure 2-9. Proposed land uses are consistent with the City of Flagstaff Fourth Street Corridor Draft Master Plan, which envisions Fourth Street evolving from a car-dominated commuter route to a transit and pedestrian-friendly multimodal corridor that creates a unique sense of place and destination that is desirable to live, work, and play, and spurs economic development.

[14] Fourth Street Corridor Master Plan, 2010

**Figure 2-9. Node 2: Fourth Street**

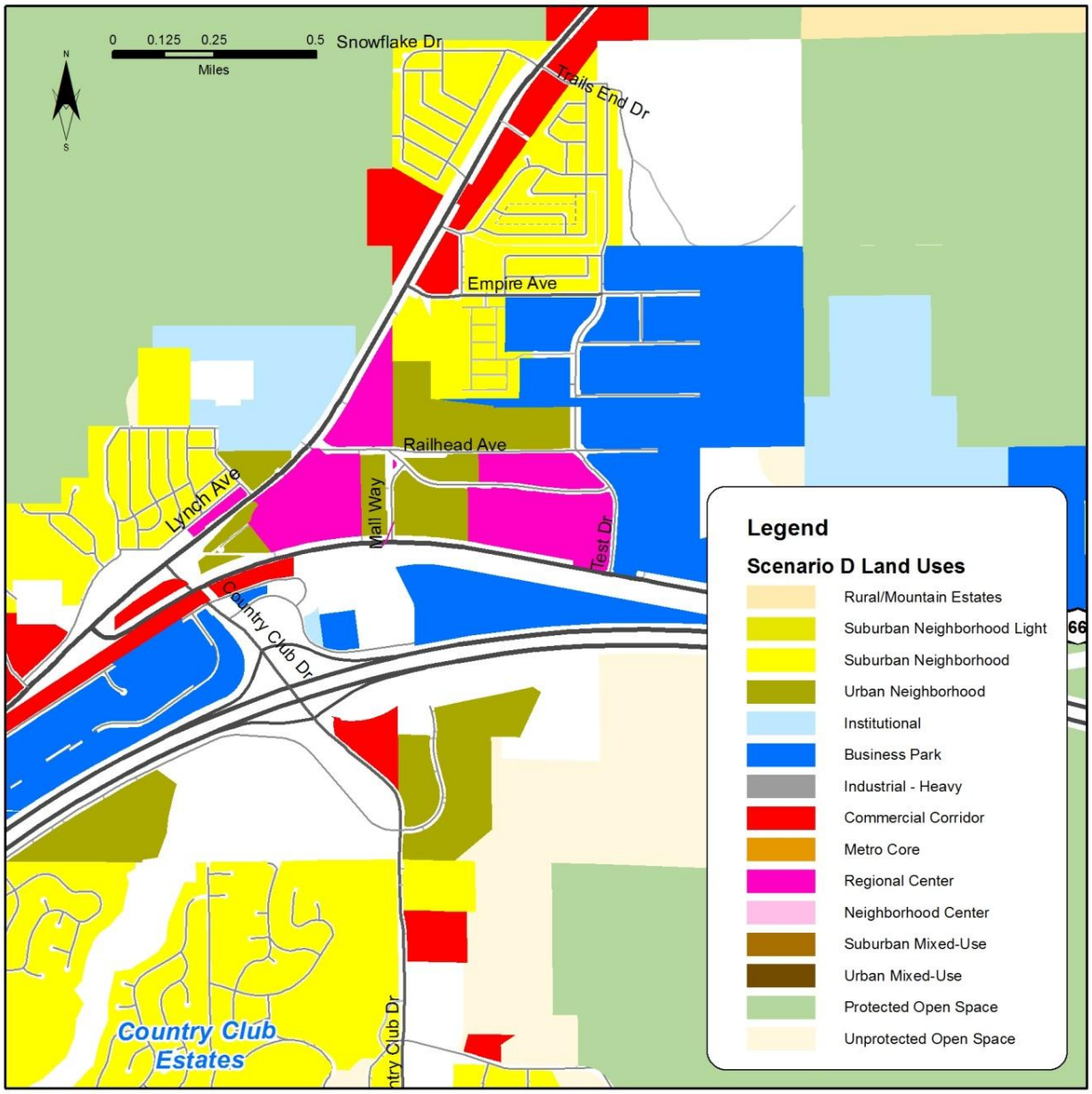



### 2.5.6 Node 3: Route 66/US 89/Flagstaff Mall Area

The easternmost node (Node 3 in Figure 2-10) is roughly centered east of the Flagstaff Mall. This area is proposed to consist of regional centers surrounded by "Business Park" and "Urban Neighborhood" land uses. This area is currently served by transit; however, an increase in high-density housing and business park land uses may justify a higher level of transit service along Route 66.

As development plans for these areas move forward, they should be reviewed for consistency with transit-oriented principles such as the density of development, mixture of land uses, pedestrian environment, and the cost and availability of parking.

**Figure 2-10. Node 3: Route 66/US 89/Flagstaff Mall Area**



# 3.0 LONG-TERM VISION FOR TRANSIT SERVICE IN THE GREATER FLAGSTAFF AREA

## Why Do We Need a Vision?

In most metropolitan areas bus transit is a publicly provided service, similar to police, fire, and water services. However, there is one significant difference between transit and those other public services; transit is the only one whose use is truly discretionary. Residents do not have many viable options should they choose not to use the public water system or police/fire services, but residents do have viable options when it comes to using public transit service. These options include:

- Driving their own car.
- Getting a ride from somebody else.
- Walking.
- Riding a bicycle.

In a perfect world, if money were not an issue, transit systems would be designed to meet everyone's needs. A transit system would operate 24 hours per day, seven days per week, and 365 days per year. It would operate very frequently, at least every 3 to 4 minutes all day long. Hundreds of routes would operate up and down almost every single street. Finally, since money would not be an issue, the fare would be minimal or even free.

Unfortunately, the amount of funding available to build and maintain a system is always a major issue for public transit agencies; thus, funding becomes a critical factor in determining the design and operation of a transit system. Choices and tradeoffs must be made by those overseeing transit. Furthermore, since transit use is a discretionary activity for most people, it becomes critical for transit planners to fine-tune their ability to make educated guesses about when and where people will actually use transit service.

**The ability to make educated guesses about transit usage gets proportionally easier when there is agreement about what role transit is supposed to play within a community. Having a clear vision about transit's role makes it easier to define a service that is effective and efficient and valued by the community.**

Prior to World War II, most transit systems were privately operated entities that existed solely to turn a profit. By default these systems followed the densest development patterns because that approach made it possible to maximize the number of people within walking distance of a streetcar line, and this ultimately maximized ridership and profit potential. Transit operators were under no obligation to serve any "market" or geographic area. They did not do anything unless they thought it would return a profit. This meant that transit lines did not extend into low-density areas or venture very far from main corridors and arterials. When transit services were operated as a business, their role was very clear in order to serve the most people to turn a profit.

During the following sixty years almost all of the private transit entities were taken over by public agencies. As this transition occurred, the role of transit became less clear. Is transit supposed to be a profit center (business), a social service (mobility for low-income residents), a tool for reaching air quality goals, all of the above, or something completely different?

### Which Way to Go? The Extreme Ends of the Vision/Role Continuum

In some communities the role of transit is to function simply as a lifeline service, providing basic—albeit very limited—mobility to those who truly have no other options. A system like this is designed to have a large amount of network coverage, but the routes operate very infrequently and/or service is limited to just a few days per week.

On the other end of the continuum are communities like San Francisco that have adopted a "Transit First" policy. A significant amount of resources are channeled to transit so that it becomes the preferred mode for getting around town (i.e., if you are going somewhere that is too far to walk, you

will turn to transit before you get in a car). Routes tend to operate very frequently, service is plentiful in all areas, and the network functions as a grid (promoting more point-to-point trips).

### What are Some Options for a Transit Vision?

A visioning workshop was conducted with NAIPTA staff and stakeholders in June 2012. Based on discussion and feedback generated from the visioning workshop, and subsequent discussion with NAIPTA staff and the study team, three long-range vision alternatives for transit in the Flagstaff region were developed. Each of these is described below.

## 3.1 Core Areas Vision

**Summary of Core Areas Vision**

**Public transit service will be planned to maximize ridership, efficiency, and productivity in core areas of the city.** Mountain Line, supported by a strong pedestrian and bicycle network, will serve as the first choice for mobility in core areas within the city such as Downtown/NAU/Flagstaff Medical Center (FMC), Sunnyside, and the area around the Flagstaff Mall. These three areas show the most potential for supporting effective public transit and are consistent with activity centers being considered in the current update to the Flagstaff Regional Plan.

In certain core areas, such as Downtown/NAU/FMC, Sunnyside, and the Flagstaff Mall, public transit service will be designed and implemented in a manner which allows it (along with walking and bicycling) to become the primary mobility mode for many types of trips. It may be possible for people who live in one of these three core areas to forgo having a car at all. The key takeaway from this vision is that it intends to generally provide a high level of service to those areas of Flagstaff that generate significant transit demand. Areas not conducive to transit or having very little potential for transit ridership would likely not be served by fixed-route transit.

### This Vision Assumes:

- Robust public transit service, with a Mountain Link bus arriving every 10 to 15 minutes, seven days per week, in high-demand areas such as Sunnyside, Downtown/NAU/FMC, and the area around the Flagstaff Mall; other routes would operate every 30 minutes.
- Little or no public transit service in low-demand areas such as Continental, University Heights, and industrial areas.
- Little or no commuter express regional service unless non-City resources are identified.

### Potential Impacts of this Vision Are:

- Reduced dependence on the private automobile in core areas such as Sunnyside, Downtown/NAU/FMC, and Flagstaff Mall.
- Reduced parking demands in core areas.
- Improved access to pedestrian-oriented retail, commercial, and office establishments.
- Lowest public subsidy required (i.e., from local taxes) per trip.

Photo rendering by Steve Price, Urban Advantage

## 3.2 City Neighborhoods Vision

**Summary of City Neighborhoods Vision**

**Transit service will be spread out so that nearly everyone living in the city is within 3/4-mile of basic transit service.** The objective is to maximize geographic coverage within city limits, with a specific emphasis on serving those who depend on Mountain Line for transportation.

This vision focuses on extending the geographic reach of transit so that most people in the city have access to at least basic and limited level of transit service. Additional resources will be used to provide services to people who do not currently have ready access to transit service and to those who depend on it for transportation (i.e., people without a vehicle, people who cannot drive, the elderly, etc.). Core areas such as Downtown/NAU, Sunnyside, and the Flagstaff Mall will not get additional service, but transit routes may serve University Heights, the homeless shelter, the YMCA, Continental, and Clark Homes, among others.

### This Vision Assumes:

- Current transit service expands to provide a bus every 60 minutes to areas of the city where ridership demand may be lower, such as Continental, Pulliam Airport, University Heights, and industrial areas.
- Moderate transit service is maintained to areas with high transit demand (Sunnyside, Downtown, FMC, NAU, Flagstaff Mall), with a bus every 20 to 30 minutes on weekdays and every 60 minutes on weekends.
- Little or no commuter express regional service unless non-City resources are identified.

### Potential Impacts of this Vision Are:

- Expanded transit service to those who currently do not have ready access to transit service in Flagstaff.
- Likely no reduction in the need for new capital programs related to automobiles (there will not be a reduction in traffic congestion, parking demand, etc.).
- Higher public subsidy required (i.e., from local taxes) per trip.

## 3.3 Regional Vision

**Summary of Regional Vision**

Transit service **will maximize geographic coverage of the system, including extending basic commuter service to outlying areas**. Dependent upon availability of resources from appropriate sources, service could be provided to Doney Park, Kachina Village, Bellemont, and areas along I-40 between Bellemont, Williams, the Twin Arrows Casino, and Winslow.

This vision focuses on extending the geographic reach of transit so that more people in the region have access to at least a basic and limited level of service. Additional resources will be used to extend new routes and services into less densely populated communities such as Kachina Village, Doney Park, Bellemont, and areas along I-40 between Williams and Winslow. Core areas such as Downtown/NAU, Sunnyside, and the Flagstaff Mall will not get additional service, but outlying areas will be pulled into the transit network, opening up mobility options for people who do not currently have ready access to transit service.

### This Vision Assumes:

- Morning and afternoon commuter express service to communities such as Doney Park, Kachina Village, Williams, and Winslow.
- Moderate service, with a bus every 20 to 30 minutes on weekdays and every 60 minutes on

weekends in high-demand areas (i.e., Sunnyside, Downtown, FMC, NAU, Flagstaff Mall).

- Little or no service in low-demand areas of the City (i.e., Continental, Pulliam Airport, University Heights, Industrial Areas).

### Potential Impacts of this Vision Are:

- Maintains current transit service levels in the City.
- Expands transit service to allow regional commuters to access Flagstaff by bus.
- Higher public subsidy required (i.e., from local taxes) per trip.

Each of the vision alternatives was presented to the public in September 2012. The results of the public input are described in Chapter 4.

# 4.0 PUBLIC INPUT ON PRIORITIES AND VISION

The draft vision alternatives were presented to the public for their input in September 2012. Public input was solicited utilizing Metroquest, an online public engagement tool. The purpose of the public outreach was to obtain public input on the transit vision alternatives and priorities for transit in the greater Flagstaff area.

## 4.1 Metroquest Tool

To garner public input on the draft vision alternatives, ADOT and NAIPTA utilized the Metroquest online tool. The Metroquest online tool enabled the project team to engage participants and provide them the opportunity to rank priorities and rate the vision alternatives.

The online tool was made available for one month between September 10 and October 10, 2012. In total 1,071 participants provided their input. To supplement the online tool and capture as much input from as wide of a community as possible, NAIPTA staff also attended community meetings and events to conduct general outreach. This additional outreach successfully brought additional awareness to the online tool and provided opportunities for those who did not have the means to access the online tool.

The online tool consisted of four screens. The first screen (Figure 4-1) provided an overview of the study, the purpose of the study, and a brief set of instructions for taking the survey. The second screen allowed participants to review nine priorities and rank their top three. The third screen asked participants to rate draft visions developed by NAIPTA, ADOT, and the study team. The final screen collected general demographic information about participants. A summary of input on design priorities and visions is provided in the following sections.

**Figure 4-1. Screenshot of Metroquest Online Survey**

## 4.2 Public Input on Route Design and Service Expansion Priorities

Participants were asked to rank their priorities for a future transit system. The priorities are listed and described in Table 4-1. Priorities were categorized as "route design" priorities or "service expansion" priorities. Table 4-1 also identifies the vision alternative that best reflects the given priority.

Participants were asked to choose their top three priorities. Of the 1,071 respondents, the route design priorities that received the most votes were "Expand City Coverage" (505 votes), "Provide Regional Service" (336 votes), and "Fast Crosstown Travel" (318 votes), one for each vision. "Run Buses Later at Night" was the number one service expansion priority.

**Table 4-1. Route Design and Service Expansion Priorities**

| | Priority | Description | Most Consistent With: | Number of Votes |
|---|---|---|---|---|
| ROUTE DESIGN | Expand City Coverage | Public transit is spread out so that nearly everyone is within close proximity to service - particularly those who rely on public transportation, such as the elderly and those without vehicles. | City Neighborhoods Vision | 505 |
| | Provide Regional Service | Public transit should extend to Doney Park, Kachina Village, Winslow, and Williams. | Regional Vision | 336 |
| | Fast Crosstown Travel | Public transit service should be quick and efficient; reducing the time it will take to reach destinations. | Core Areas Vision | 318 |
| | Reduce Congestion | Public transit service should reduce automobile congestion on streets in the Flagstaff region. | Core Areas Vision | 244 |
| | Provide Cost-effective Service | Public transit service should focus on main corridors that move the most people possible such as Sunnyside, Downtown, NAU, and Flagstaff Mall. | Core Areas Vision | 243 |
| | Shorten Walk Time | Provide more bus stops in neighborhoods to make it more convenient to ride the bus; however, more bus stops would decrease the average speed of the bus as it stops more frequently. | City Neighborhoods Vision | 164 |
| SERVICE EXPANSION | Run Buses Later at Night | Buses should run until midnight or later. | Can be implemented in all of the visions | 355 |
| | Reduce Wait Times | Buses should be frequent so wait time is short. | Can be implemented in all of the visions | 328 |
| | Increase Weekend Service | Bus service on weekends should be equal to bus service on weekdays. | Can be implemented in all of the visions | 306 |

## 4.3 Public Input on Vision

The next step of the online tool enabled respondents to view how their priorities were reflected in each of the vision alternatives and to rate each vision alternative on a 1 to 5 scale, with 5 being most favorable, 1 least favorable, and 3 as neutral. Based on favorability ratings depicted in Table 4-2, the Core Areas Vision received the highest scores.

**Table 4-2. Vision Ratings**

| VISION | RATING VALUE | | |
|---|---|---|---|
| | Unfavorable | Neutral | Favorable |
| Core Area | 71 | 137 | 380 |
| Regional | 184 | 134 | 280 |
| City Neighborhoods | 165 | 150 | 269 |

As documented in the existing conditions analysis, more than 80% of Flagstaff residents are currently served by existing transit routes. Public input received through the online Metroquest tool confirmed that this coverage is important to Flagstaff residents.

The results of the online tool also show that based on favorability ratings, the Core Area vision received the highest ratings. However, considering the preferred design and service expansion priorities, providing geographic coverage and regional service are also high priorities. A hybrid approach to a preferred vision that provides both efficient service in core areas (Core Area vision) and geographic coverage to Flagstaff neighborhoods (City Neighborhood vision) will best meet the competing objectives expressed by the public. A hybrid vision includes elements of each of the vision alternatives – Core Areas, City Neighborhood, and Regional Service. A hybrid vision includes high levels of transit service (i.e., high frequency, numerous routes) in core areas where transit service will be productive, and lower levels of transit service (lower frequency) in neighborhoods and less-dense areas. A hybrid vision also provides limited regional commuter service to outer communities.

A hybrid approach guided development of short-, mid-, and long-term service plans as documented in Chapter 5.

### Hybrid Approach to Service Plans

A hybrid service plan, to be presented in Chapter 5, will reflect elements of each of the vision alternatives – Core Areas, City Neighborhood, and Regional Service. A hybrid vision includes high levels of transit service (i.e., high frequency, numerous routes) in core areas where transit service will be productive, and lower levels of transit service (lower frequency) in neighborhoods and less-dense areas. A hybrid vision also provides limited regional commuter service to outer communities. A hybrid approach to a preferred vision will lead to a plan that achieves the following:

1. Provides efficient service in and connects core areas of the City such as downtown, NAU campus and the Fourth Street corridor.

2. Expands service to other Flagstaff neighborhoods.

3. Identifies opportunities to extend service to surrounding communities (sources can be identified).

## 5.0 SERVICE PLAN

This section presents the proposed changes in fixed-route services for NAIPTA over the short- (next five years), mid- (five-10), and long-term (10-20 year) time horizons. The services described in this section are based on the hybrid vision recommendation from Chapter 4, public feedback, and numerous discussions with NAIPTA staff. The service recommendations are also informed by an extensive data collection effort and passenger survey conducted in the spring of 2012. This section does not cover Mountain Lift, as its services are anticipated to remain similar to today.[15] However, the mid- and long-term service plans introduce "mobility and supplemental services," which are intended to cater towards current Mountain Lift patrons. These services are also referred to in the plan as the "Transportation Safety Net."

The service plan describes three key questions regarding proposed NAIPTA service including:

(1) **Where:** Where does the service operate?

(2) **When:** When during the day does the service operate?

(3) **How:** How frequently does the service operate?

In the following sections, services are described in further detail by their service characteristic type which may include "productivity," "coverage," or "city neighborhoods" and "regional" types of services. The services described in this section are built around two resource assumptions. These service assumptions were developed in consultation with NAIPTA staff and include:

- **Status Quo:** resources including local transit tax and other supplemental funding will remain consistent with levels in 2012.

[15] Mountain Lift services will expand in relation to the Mountain Line service area in accordance to ADA guidelines.

- **Increased Funding:** resources will increase by 50%.[16]

For planning purposes, the short-term service plan assumes that funding levels in Year 1 to Year 5 will remain at the status quo. Funding in the mid- and long-term assumes a 50% increase in funding over existing levels.

The service plan identifies several route numbering changes to better reflect various Mountain Line service types. Going forward, it is suggested that route numbers reflect the Mountain Line and Mountain Link service characteristics. Table 5-1 summarizes route number service changes across the plan.

**Table 5-1. Mountain Line and Mountain Link Route Number Changes**

| | CURRENT ROUTE NUMBER | PROPOSED ROUTE NUMBER |
|---|---|---|
| Mountain Link | Route 10 | Route 1 (Crosstown Rapid)<br>Route 10 (NAU Link) |
| Productivity Services | Route 2<br>Route 4<br>Route 66 | Route 11<br>Route 12<br>Route 15 (Short-Term Only) |
| Coverage Services (Neighborhood Connectors) | Route 3<br>Route 5<br>Route 7 | Route 100<br>Route 200<br>Route 300<br>Route 400 (Mid- and Long-Term)<br>Route 500 |

## 5.1 Short-Term Service Plan (Year 1 – Year 5)

The short-term service plan describes how Mountain Line and Mountain Link will transform over the next five years. This plan begins to introduce elements that will be seen in the mid- and long-term service plans, while also addressing immediate needs as determined though this planning process.

Service criteria for the short-term service plan include:

- Introducing a crosstown rapid bus service with frequencies of 20 minutes or better.
- Establishing a plan that allows seamless transition from the existing route network.
- Enhancing connections between NAU and CCC.

Under the short-term service plan, the Mountain Line system sees several major changes including the introduction of some new services and elimination of others. The majority of services that exist today are preserved. In addition, some new areas within the City of Flagstaff are offered new service.

[16] For planning purposes, the specific source of these funds is not predicted at this time. However, it is presumed that it would be a combination of sources such as local sales tax, county funds and federal funding.

### Improved Cross-Town Travel with Fewer Transfers

Mountain Line currently operates as a pulse and timed transfer system. In this system, common in smaller communities, buses serving a transit center arrive at the same time, wait for several minutes to allow for passengers to transfer between buses, and then all leave at the same time. This system facilitates simple transfers and provides an opportunity for buses to safely park out of traffic while other routine operations are completed (driver shift changes and breaks). Routes are designed so that the roundtrip cycle time for each route is the same or equal to some multiple of the pulse interval (to ensure buses can complete their trip and return at the same time). While a pulse system minimizes transfer time between routes, it also limits bus routing and may require trips between outlying points to return to the transfer center, even if it's not the optimal path between key origins and destinations.

The proposed short-, mid-, and long-term service plans in the Flagstaff Regional Five-Year and Long Range Transit Plan provides more point-to-point transit service on key routes, reducing trip lengths and making it more efficient for cross-town. The extension of Route 10 (Mountain Link) reduces reliance on transfers for cross-town travel, reducing travel time and improving convenience for transit riders. Transfers that may need to occur on these routes would be completed at on-street stops away from the transfer center with upgraded bus stops supplemented with real-time arrival information. Some routes would continue to make transfers at the Downtown Transfer Center.

Key changes in the short-term include the following:

- Route 10 (Mountain Link) is extended to Flagstaff Medical Center and across town to Sunnyside with a terminus at the Flagstaff Mall Transfer Center.
- Route 4 is supplemented with a clockwise-running service, providing bi-directional service with a combined service frequency of 20 minutes.
- Route 3, Route 7, and Route 66 are eliminated and replaced with portions of new Routes 200 (Route 66) and 300 (Sunnyside and Flagstaff Mall). Route 100 is introduced to provide service to Sunnyside, Little America, Switzer Canyon Drive, and the Thorpe Park area. It should be noted that Route 100 will operate at a 60-minute frequency for both on-peak and off-peak periods, a reduction of the current 30-minute peak frequency currently provided by Route 3.
- Route 200 is introduced to serve destinations along Route 66 connecting West Route 66 neighborhoods to the Fourth Street area. Route 200 also serves Industrial Drive. In addition, it is routed to serve Plaza Vieja.
- Route 300 is introduced to service Sunnyside and extends to the Flagstaff Mall.
- Route 15 (unfunded at this time) is introduced to provide service between the Downtown Transfer Center, NAU, and CCC.

Additional information about each of these services is provided below in the following categories:

- **Mountain Link**: describing NAIPTA's high-frequency, limited-stop crosstown service.

- **Productivity services**: describing routes serving areas with high potential for transit usage.
- **Coverage services**: describing NAIPTA routes serving areas with limited transit-ridership potential, but are critical for connecting with other parts of Flagstaff.
- **Regional services**: describes transit services to outlying areas including Doney Park, Kachina Village, and communities along the I-40 corridor.

### 5.1.1 Mountain Link (Route 10)

In the short-term the existing Mountain Link system is significantly enhanced in terms of service area while also improving weekend service frequency. An expanded Mountain Link (Route 10) supports a primary tenet of the Core Areas Vision by providing fast, frequent service and connecting the three core areas of Flagstaff (NAU/Woodlands Village/Downtown, Sunnyside, and the areas surrounding the Flagstaff Mall). In the short-term, Mountain Link service is extended beyond its current northern terminus to connect several key destinations. These include Flagstaff Medical Center, Sunnyside (4th Street), and the Flagstaff Mall. Mountain Link will make this connection via McMillan Mesa (Forest/Cedar). This level of service provides riders within walking or cycling distance of the corridor (and those transferring to the corridor) a very frequent and reliable service. It is recommended that areas within walking or bicycling distance of Route 10 be considered a high priority for pedestrian and bicycle safety amenities and features to ensure that existing and future riders can safely access the Mountain Link service.

Service frequency during weekdays will remain at 15-minute headways during peak periods and 20-minute headways during off-peak periods. Weekend service frequency will be increased to 30-minute headways (from 40 minutes today). The service plan proposes service to be provided for 16 hours per weekday and 13 hours per weekend day. Opportunities to extend service hours on weekends may be evaluated in the future for Friday and Saturday.

**Why Does Mountain Link (Route 10) Follow Cedar Avenue**

Stakeholders have asked why Route 10 is proposed to be extended along Cedar Avenue rather than along Route 66. Cedar Avenue offers the following advantages over Route 66:

- Supports a primary tenet of the Core Areas Vision by connecting three core areas of Flagstaff (NAU/Woodlands Village/Downtown,, Flagstaff Medical Center, Sunnyside, and the areas surrounding the Flagstaff Mall).
- Mountain Link can be a catalyst for redevelopment of the Fourth Street corridor into a walkable, transit-oriented place. Existing constraints make redevelopment along Route 66 into a transit friendly, walkable corridor more difficult considering the existing railroad and geologic features.
- Existing traffic congestion on Route 66 would slow cross-town transit travel. Route 10 on Cedar Avenue would provide for quicker cross-town travel.

The extension of Mountain Link to Flagstaff Medical Center and over McMillan Mesa provides a new transit link between the different districts of Flagstaff. It is assumed that the eastern segments (McMillan Mesa, Sunnyside, Flagstaff Mall area) will likely have higher running speeds as compared to the segments of Mountain Link on NAU's campus and in downtown. However, this plan also introduces some potential mechanisms to increase transit speeds in these current bottlenecks. In Sunnyside, Mountain Link is planned to run along Cedar Ave and 4th Street. On Route 66, it will replace portions of the current Route 66 to and from the Flagstaff Mall.

### 5.1.2 Productivity Services

In the short-term, the fixed-route system will undergo some routing and frequency changes while service spans (time of operation) will stay largely similar to current services. Productivity services are those focused on corridors that currently have a high ability to attract transit riders (in addition to the Mountain Link service corridor). This includes the areas around NAU, portions of Butler Avenue, and 4th Street. These corridors will be served within the short-term by Route 4, Route 2, and a new Route 15 (pending additional funding).

The new route reconfiguration facilitates additional means of crossing Route 66 and the BNSF Railroad tracks (a formidable mobility barrier for pedestrians and cyclists in Flagstaff) by effectively doubling the number of services crossing the railroad tracks at 4th Street. Furthermore, this reconfiguration allows for transfer opportunities at the base of Sunnyside on 4th Street near Route 66 and along 4th Street in Sunnyside.

Another notable enhancement in the short-term is the introduction of two-way service on Route 4. By providing clockwise and counter-clockwise service on Route 4, service levels will increase. For this scenario, it is recommended that base frequency and peak frequencies remain at 40 minutes. However, the major change is that service will be offered in both circulating directions, effectively offering 20-minute service. Weekend (clockwise) service will be provided at 30-minute headways, operating in one direction only.

### 5.1.3 Coverage Services

While the majority of resources will be dedicated to productivity services, some changes to coverage services will be offered, including providing new service to corridors such as Switzer Canyon Drive. Coverage services will likely be lower frequency, but will "cover" areas not generally capable of generating high transit ridership. A major change is the reconfiguration of existing Routes 3, 5 and 7 into Routes 100, 200, 300 and 500 (Neighborhood Connectors). These routes will provide service to similar corridors. Route 200 will continue to terminate at Thompson Street on Flagstaff's west side. However, an extension is also proposed to provide service as far west as Woody Mountain Road. This service option is evident in all service scenarios. Route 500, which currently provides service to Cheshire, will no longer serve Thorpe Park or City Hall. Service to Thorpe Park, Clark Homes, and City Hall will be maintained from the newly created Route 100, which connects this area with Switzer Canyon Drive, Butler Avenue, and Sunnyside. Notably, Route 400 is absent from the above package of services. Route 400 will be introduced in the mid-and long-term plans as a proposed service in the southwestern portion of Flagstaff.

### 5.1.4 Regional Services

In the short-term, vanpool service to Kachina Village and Doney Park may be introduced if funding is identified. Vanpools are eligible for Section 5310 funds.

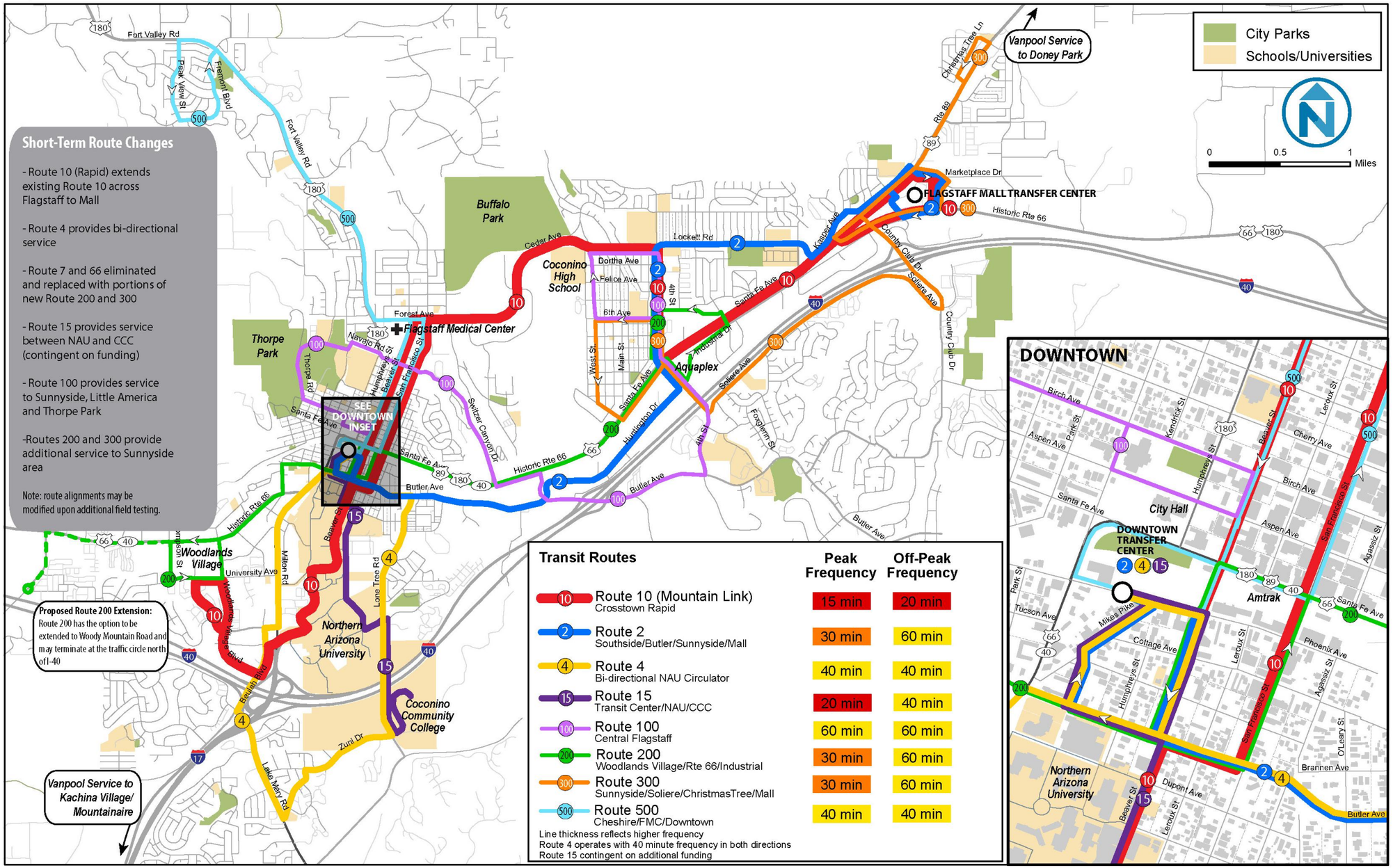
### 5.1.5 Service Summary

Table 5-2 and Figure 5-1 provide the proposed routes, service levels, and service spans for the short-term service plan.

**Table 5-2. Short-Term (Year 1 – Year 5) Service Summary**

| Route Number | Description | Weekday | | | Saturday | | Sunday | |
|---|---|---|---|---|---|---|---|---|
| | | Peak Freq. (mins) | Base Freq. (mins) | Service Span (hrs) | Base Freq. (mins) | Service Span (hrs) | Base Freq. (mins) | Service Span (hrs) |
| 10 | Woodlands Village/NAU/Downtown/FMC/Sunnyside/66/Mall | 15 | 20 | 16 | 30 | 13 | 30 | 13 |
| 2 | Southside/Butler/Sunnyside/Lockett/Mall | 30 | 60 | 16 | 60 | 13 | 60 | 13 |
| 4A | NAU Circulator (Clockwise) | 40 | 40 | 16 | 30 | 13 | 30 | 13 |
| 4B | NAU Circulator (Counterclockwise) | 40 | 40 | 16 | - | - | - | - |
| 15* | NAU-CCC Connector* (Contingent on Available Funds) | 20 | 40 | 12 | - | - | - | - |
| 100 | Thorpe Park/Switzer Cyn/Butler/4thStreet | 60 | 60 | 13 | - | - | - | - |
| 200 | Woodlands Village/TC/66/West 66/Sunnyside | 30 | 60 | 16 | 60 | 13 | 60 | 13 |
| 300 | Sunnyside/Soliere/Christmas Tree/Mall | 30 | 60 | 16 | 60 | 13 | 60 | 13 |
| 500 | Cheshire/FMC/Downtown/TC | 40 | 40 | 8 | - | - | - | - |

**Figure 5-1. Proposed Short-Term Fixed-Route Network**



## NAU and Mountain Line Coordinated Transit

The NAU Campus is the largest generator of transit boardings in Flagstaff and has unique transportation needs. Currently students, faculty, staff and visitors rely on transit services provided by a combination of NAU and NAIPTA to connect to locations both on and off campus.

As this study has shown, transit ridership on the Beaver Street Transitway is exceptionally strong during certain periods of the day (predominately when class is in session). This may warrant additional passenger capacity in the form of larger (articulated) vehicles or more frequent service to accommodate rider demand. However, to ensure needs are adequately met, a coordinated NAU/NAIPTA transit study should be pursued to determine how to best serve these campus needs. Findings may help inform future transit service recommendations that may include reconfiguring the Transitway to accommodate additional capacity by allowing vehicle passing, serving key destinations adjacent to campus that are currently not served by NAIPTA or NAU and procuring vehicles that most adequately meet ridership demand profiles.

As one of the major trip-generators in the region, NAU transit needs should be assessed holistically with the understanding that riders are not concerned with campus boundaries when it comes to mobility needs. Transportation providers serving campus must ensure that rider needs within and beyond campus are effectively served and are as seamless as possible. In the short-term the following recommendations are made regarding NAU's transit needs:

- Initiate a joint NAU/NAIPTA Transit Coordination Study within the short-term timeframe of this plan.
- Establish a University Pass program allowing NAU (and CCC) students to ride all NAIPTA routes for free (program funding and specific rider policies and qualifications would need to be further articulated).
- Ensure that current (and future) NAIPTA routes are publicized on-campus and through NAU's website.
- Ensure that existing transfer opportunities between systems (NAU and NAIPTA) are highlighted and marketed through print or web materials.

## 5.2 Mid-Term Service Plan (Year 6 – Year 10)

Under the mid-term service plan, several significant service routing and route numbering changes occur starting with Mountain Link.

- Mountain Link service is split into two separate services. The new Crosstown Rapid (Route 1) maintains service provided by Route 10 in the Short-Term Plan with an alignment change on Milton Road (it no longer operates on NAU's campus). NAU Link (Route 10) is modified as a campus-specific Mountain Link service that connects Woodlands Village and NAU. NAU Link service would terminate to the south of the railroad tracks near the Downtown Transfer Center.
- Route 4 is eliminated and is replaced with an expanded Route 12 (formerly route 15 in the Short-Term) and extended Route 11 (formerly Route 2 in the Short-Term) service.
- Route 11 provides a one-seat ride from Ponderosa Trails via NAU and Butler Avenue through Sunnyside and finally the Flagstaff Mall.
- Route 400 is introduced to serve University Heights and Ponderosa Trails.

Additional information about each of these services is provided below.

### 5.2.1 Mountain Link

Considering the differing service needs along the crosstown transit "spine" versus the NAU campus, Mountain Link should be crafted to provide for these unique markets. Once resources become available, it is recommended that the Mountain Link rapid bus service be split into two separate services. These two routes can be adjusted accordingly to provide service that meets the specific needs of their ridership. Furthermore, Mountain Link services may be further enhanced by NAU/NAIPTA service coordination.

In the mid-term, Mountain Link is split between Route 1 (Crosstown Rapid) and Route 10 (NAU Link). This split of services provides several benefits. As an example, during the summertime, NAU Link can be scaled back to meet summer NAU needs without impacting the remainder of the route. Similarly, the Crosstown Rapid can provide a more consistent service without being hampered by high passenger loads during the day on NAU's campus. The mid-term plan suggests bringing the Crosstown Rapid service onto Milton Road, which is frequently congested and slow with traffic. This route alignment recommendation comes with the stipulation that Milton Road in the future will be constructed with transit speed enhancements such as transit-only lanes, signal priority, and other treatments that will ensure speed reliability in this critical corridor. Furthermore, bringing Mountain Link onto Milton Road provides an opportunity to serve numerous important destinations in Flagstaff and provides a more direct link to Woodlands Village.

Mountain Link services in the mid- term would continue to operate with frequent headways. The Crosstown Rapid would operate at 15 minutes peak and 20 minutes off-peak while NAU Link would operate at 10 minutes peak and 15 minutes off-peak. The Crosstown Rapid would offer 30-minute weekend service whereas NAU Link would not operate on the weekend.

### 5.2.2 Productivity Services

In the mid-term, productivity services are restructured in response to changes in the Mountain Link service. The most noticeable changes in route structure include extending Route 11 (formerly Route 2) through NAU's campus to Beulah Blvd and Lake Mary Road. The new Route 11 provides direct service from Bow and Arrow through NAU's campus to the developing Sawmill area, then Sunnyside with a final termination point at the Flagstaff Mall. The realignment of Route 11 provides service to the key growth areas of Flagstaff using an alternative route as Mountain Link. Complementary to Route 11, Route 12 (formerly Route 15) serves the east side of NAU's campus and provides high-frequency service (15 minute peak) between the Downtown Transfer Center, Lone Tree Road, and CCC. Route 15 is anticipated to be jointly funded by NAIPTA with support from NAU and/or CCC. Service frequencies and spans for Routes 11 and 12 can be found in Table 5-3. While, Route 15 is not proposed to have weekend service, this could be added at a later time if demand exists or additional funding is available.

### 5.2.3 Coverage Services

In the mid-term, coverage services within the City of Flagstaff are only slightly modified from the short-term plan. The mid-term plan also recommends commuter express services to both Doney Park and Kachina/Mountainaire from Downtown Flagstaff. It is expected that these services would run approximately hourly, five times per day (Two morning and two evening trips and one mid-day trip).

In addition, Route 400 is introduced, which is proposed to provide service to University Heights and Ponderosa Trails. However, the actual service alignment for this service has yet to be selected. Discussions with neighborhoods will be initiated as Route 400 is planned and implemented. It is anticipated that Route 400's alignment will be developed through a community process to ensure its routing provides the most efficient and appropriate service for users in the neighborhood.

### 5.2.4 Regional Services

If funding is identified, and in collaboration with other agencies, commuter express service could also be considered for communities including Williams, Bellemont, Twin Arrows and Winslow.

The Community Transportation Association Rural Passenger Transportation Assistance Program (RPTAP), sponsored by the US Department of Agriculture, provided a grant to a partnership of NAIPTA and the Economic Collaborative of Northern Arizona (ECoNA) to identify intercity transit options between Grand Canyon, Williams, Flagstaff, and Winslow. The study will include a needs assessment, analysis of obstacles and barriers, and identification of potential service models.

### 5.2.5 Service Summary

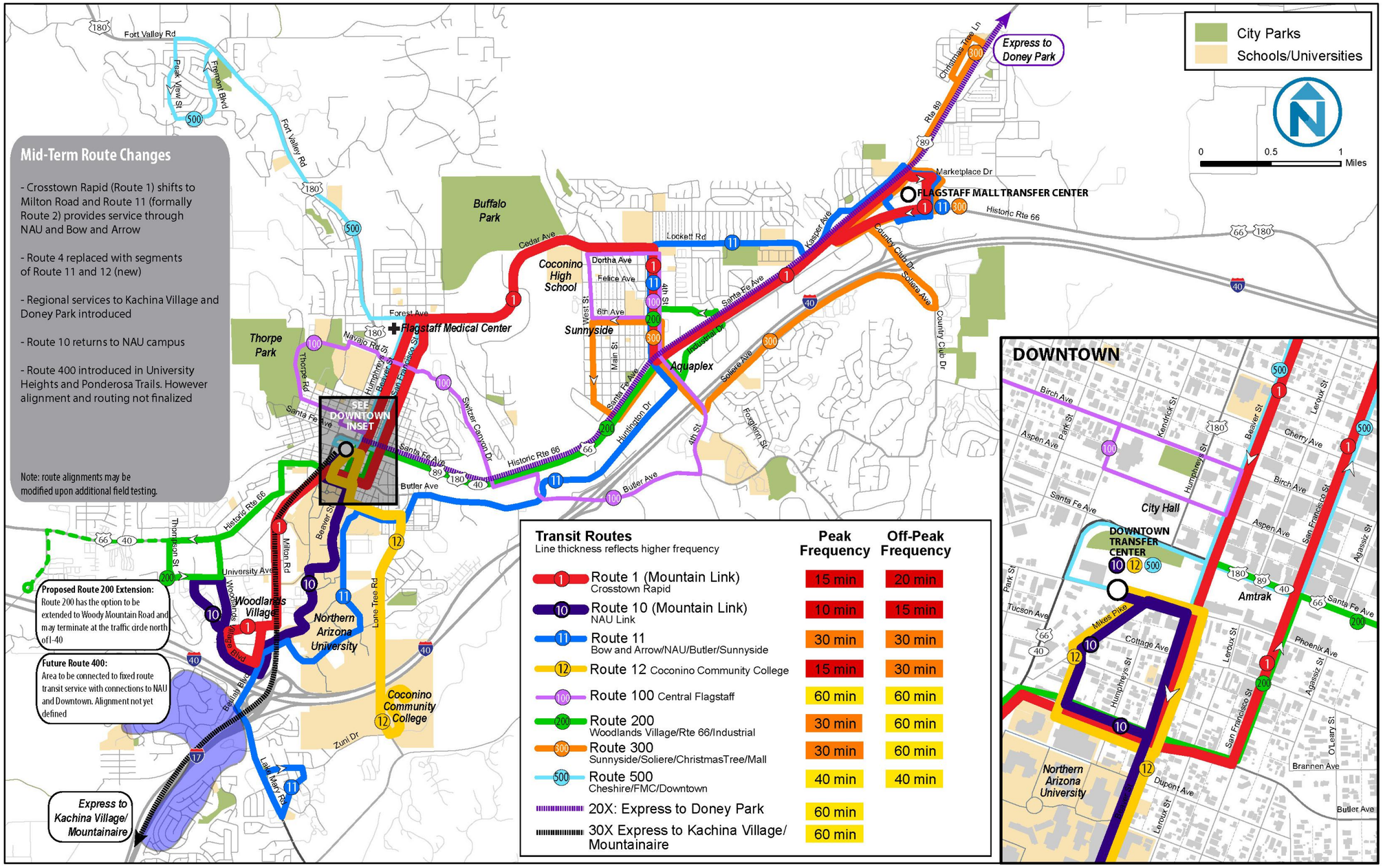
Table 5-3 and Figure 5-2 provides the proposed routes, service levels, and service spans between Year 6 and Year 10.

### Table 5-3. Mid-Term (Year 6 – Year 10) Service Summary

| Route Number | Description | Weekday | | | Saturday | | Sunday | |
|---|---|---|---|---|---|---|---|---|
| | | Peak Freq. (mins) | Base Freq. (mins) | Service Span (hrs) | Base Freq. (mins) | Service Span (hrs) | Base Freq. (mins) | Service Span (hrs) |
| 1 | (Crosstown Rapid) Woodlands Village/Milton/Downtown/FMC/Sunnyside/66/Mall | 15 | 20 | 16 | 30 | 15 | 30 | 15 |
| 10 | (NAU Link) Woodlands Village/NAU/Transit Center | 10 | 15 | 16 | - | - | - | - |
| 11 | Bow and Arrow/NAU/Butler/Sunnyside/Lockett/Mall | 30 | 30 | 16 | 30 | 15 | 30 | 15 |
| *12 | TC/Franklin/Lone Tree/CCC | 15 | 30 | 16 | - | - | - | - |
| 100 | Thorpe Park/Switzer Cyn/Butler/4thStreet | 60 | 60 | 15 | 60 | 15 | 60 | 15 |
| 200 | Woodlands Village/TC/West 66/Sunnyside | 30 | 60 | 16 | 60 | 15 | 60 | 15 |
| 300 | Sunnyside/Soliere/Christmas Tree/Mall | 30 | 60 | 16 | 60 | 15 | 60 | 15 |
| 400 | University Heights/Ponderosa Trails Service | 60 | 60 | 15 | 60 | 15 | 60 | 15 |
| 500 | Cheshire/FMC/Downtown/TC | 40 | 40 | 15 | - | - | - | - |
| *20X* | *Doney Park Express* | *60* | *60* | *5* | - | - | - | - |
| *30X* | *Kachina/Mountainaire Express* | *60* | *60* | *5* | - | - | - | - |

*Route 12 may be expanded to weekend service dependent on ridership demand

**Figure 5-2. Proposed Mid-Term Fixed-Route Network**



## 5.3 Long-Term Service Plan (Year 11 – Year 20)

The long-term service plan presents a vision for the Mountain Line system in twenty years.

The long-term plan builds upon the transit network introduced in the mid-term plan, and introduces a major service improvement connecting Flagstaff to its airport, a potential future regional transportation hub.

***It is important to emphasize that the long-term service plan may change as the City of Flagstaff evolves. Key factors include the pace of growth, and the location of new development and redevelopment in Flagstaff and in the region. The elements included in the long-term service plan will require additional analysis and modifications over the next two decades as the City of Flagstaff changes and evolves***. However, this plan presents a transit network that serves as a foundation for future growth. To ensure recommendations in the long-term are cost effective, the City of Flagstaff should ensure all transportation and development projects throughout the City are developed with transit enhancements in mind. These include safe pedestrian and bicycle amenities to ensure access to bus stops and roadway network enhancements that allow transit to move efficiently throughout the City. Transit service should be a key element in the City's "transportation fabric." Enhancements that improve the transit network will be beneficial to the City's transportation network in whole.

**Regional Transportation Hub**

The long-term service plan proposes extension of transit service to Flagstaff Pulliam Airport, a potential regional transportation hub. The airport transportation hub could serve as place where passengers could transfer between public and private transportation providers such as taxis, shuttle services, Mountain Line. Benefits of an airport transportation hub are its close proximity to I-17, providing convenient access for service providers outside of the congested city center.

Additional analysis of this concept should be conducted as the long-term service plan is considered for implementation.

### 5.3.1 Mountain Link

In the long-term, Mountain Link service is slated to remain similar to the mid-term Mountain Link route network with one major modification: Crosstown Rapid service is extended beyond Woodlands Village on Interstate 17 to serve the Flagstaff Pulliam Airport. Presently, service frequencies are suggested at 15 minute peak and 20 minute off-peak due to the long length of the route. However, modifications to the route structure could be included to ensure 10-15-minute service within key segments of the route within Flagstaff and potentially 20-30-minute service to the airport during weekday service hours. Weekend service hours would remain at 30 minutes. Service hours could be extended if additional funding is identified.

### 5.3.2 Productivity Services

Productivity services are not anticipated to change from the mid-term to the long-term.

### 5.3.3 Coverage Services

The coverage service route network remains the same from the mid-term to the long-term.

### 5.3.4 Regional Services

The regional service route network remains the same from the mid-term to the long-term. This includes commuter express services to both Doney Park and Kachina/Mountainaire from Downtown Flagstaff, and service to communities along the I-40 corridor contingent upon identification of funding.

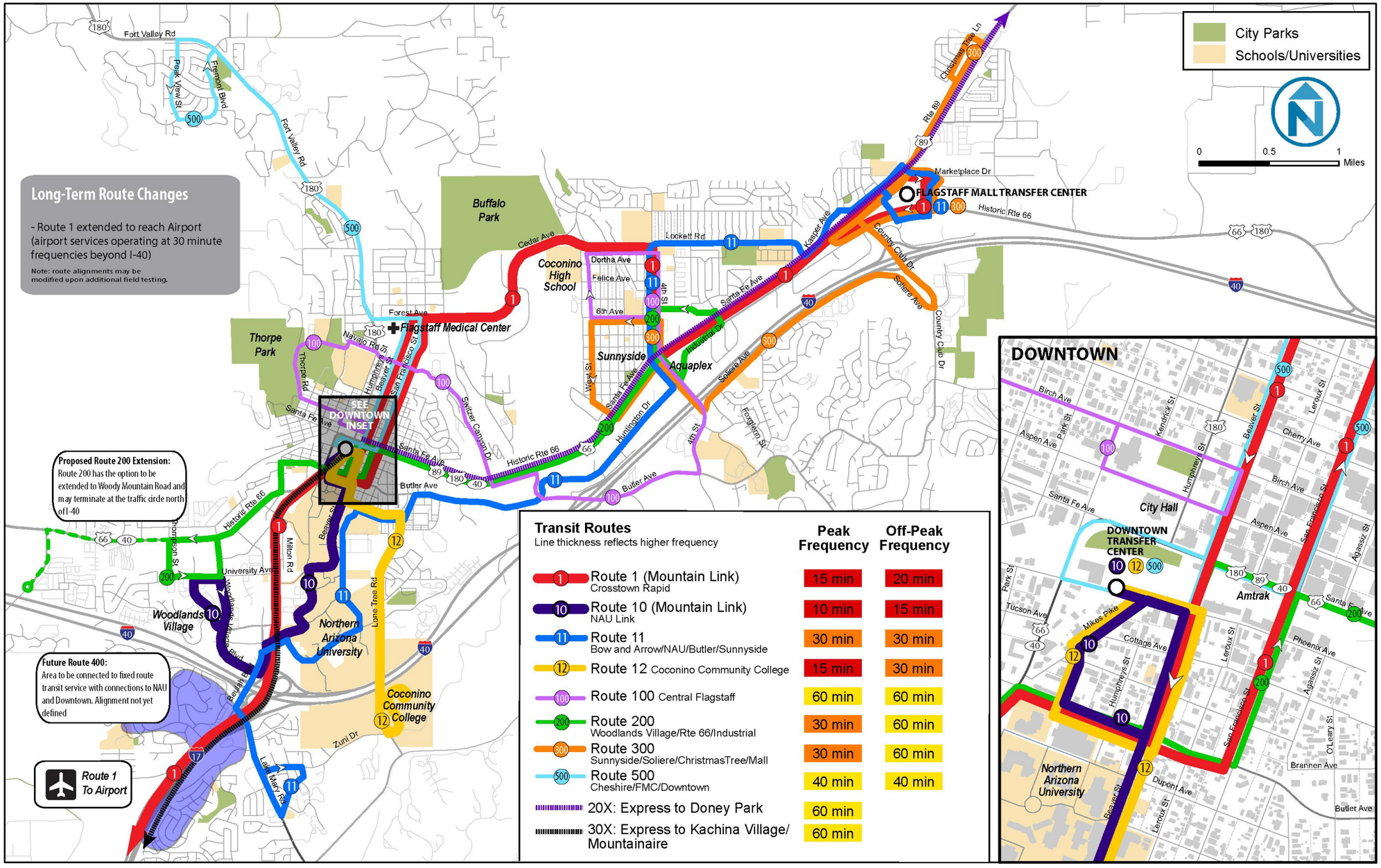
### 5.3.5 Service Summary

Table 5-4 and Figure 5-3 provide the proposed routes, service levels, and service spans for the long-term service plan.

**Table 5-4. Long- Term (Year 11 – Year 20) Service Summary**

| Route Number | Description | Weekday | | | Saturday | | Sunday | |
|---|---|---|---|---|---|---|---|---|
| | | Peak Freq. (mins) | Base Freq. (mins) | Service Span (hrs) | Base Freq. (mins) | Service Span (hrs) | Base Freq. (mins) | Service Span (hrs) |
| 1 | (Crosstown Rapid) Airport/Milton/Downtown/FMC/Sunnyside/66/Mall | 15 | 20 | 16 | 30 | 15 | 30 | 15 |
| 10 | (NAU Link) Woodlands Village/NAU/Transit Center | 10 | 15 | 16 | - | - | - | - |
| 11 | Bow and Arrow/NAU/Butler/Sunnyside/Lockett/Mall | 30 | 30 | 16 | 30 | 15 | 30 | 15 |
| 12 | TC/Franklin/Lone Tree/CCC | 15 | 30 | 16 | - | - | - | - |
| 100 | Thorpe Park/Switzer Cyn/Butler/4thStreet | 60 | 60 | 16 | 60 | 15 | 60 | 15 |
| 200 | Woodlands Village/TC/West 66/Sunnyside | 30 | 60 | 16 | 60 | 15 | 60 | 15 |
| 300 | Sunnyside/Soliere/Christmas Tree/Mall | 30 | 60 | 16 | 60 | 15 | 60 | 15 |
| 400 | U-Heights/Ponderosa Trails Service | 60 | 60 | 15 | 60 | 15 | 60 | 15 |
| 500 | Cheshire/FMC/Downtown/TC | 40 | 40 | 15 | - | - | - | - |
| 20X | Doney Park Express | 60 | 60 | 5 | - | - | - | - |
| 30X | Kachina/Mountainaire Express | 60 | 60 | 5 | - | - | - | - |

**Figure 5-3. Proposed Long-Term Fixed-Route Network**



## 5.4 Basic Mobility and Supplemental Services

A wide variety of transportation programs could fall under the basic mobility and supplemental services category. These programs form the foundation of NAIPTA's transportation offerings and either 1) provide the most basic level of "safety net" service for individuals requiring mobility in Flagstaff or 2) offer a service that helps support transit services either directly or indirectly.

Given the increases in services, additional funding is not available for mobility and supplemental services in the short-term. However, it is recommended that self-organizing services such as employer vanpools be established as a pilot program as an initial step if administrative setup resources are available. These types of programs can be very cost effective and provide specific transportation needs without any NAIPTA operational cost. In the mid- and long-term, resources for mobility and supplemental services are expanded. These resources are not specified for any specific transportation solution at this time, but are intended to be used for transportation demand management or transportation programs that help enable mobility through alternative mechanisms. These funds can be considered "seed funding" for a variety of potential programs as described in the following section.

### *5.4.1 Basic Mobility Programs*

Basic mobility programs do exactly that—they provide a basic level of transportation service for individuals that may not have access to the NAIPTA service area. These types of trips would typically be pre-scheduled and infrequent. Typical trips that fall into these scenarios may include medical appointments, shopping trips, or similar. These programs may be operated directly by NAIPTA or they may simply be facilitated by NAIPTA (with the actual operation being handled through other local organizations or the general public). Examples of these types of program are described in the following paragraphs.

#### Taxi Voucher Program

Presently**,** NAIPTA offers a Taxi Voucher program for Mountain Lift clients, which still provides a level of mobility (with some flexibility). A taxi voucher program is a good alternative to running scheduled paratransit van service during periods where is it may be highly cost ineffective. Using this model, a taxi voucher program could be expanded to allow members of the general public (within certain areas not served by Mountain Line) to take advantage of the program. Similarly, while a taxi voucher program does provide a direct subsidy, it still can be more cost effective than operating a fixed-route service. A "general public taxi voucher program" may be seen as a basic mobility alternative to a general public dial-a-ride. For such a program to work, requirements and stipulations must be put into place to ensure the program is used as intended. Moving forward, it is recommended that the taxi voucher program continue to operate as it does today. However, program requirements should be monitored and updated as necessary.

#### Volunteer Driver Programs

Some cities have established volunteer programs that help match driver volunteers with community transportation needs that may be difficult to serve with fixed-route transit. Drivers who volunteer in this program would be required to undergo a driver safety screening process. Once qualified, they are eligible to volunteer their time to drive individuals from location to location depending on their

availability. NAIPTA could serve as a coordinator of this type of service, establishing standards and also conducting marketing for both potential riders and volunteer drivers. The Community Transportation Association of America (CTAA) provides numerous resources[17] about establishing a volunteer driver program. Key issues includes establishing a platform for connecting potential drivers with those who need rides, liability and risk, and ensuring that a volunteer driver program complements existing transportation resources. More information on this topic can be found via the CTAA at http://www.ctaa.org/.

### Collaborative Consumption Movement

As an alternative to an internally coordinated volunteer ridesharing service, recent developments in the "collaborative consumption" movement present innovative transportation-related services and mobile-based applications that may have potential within the space of ridesharing. These services create local marketplaces for those who need rides (and are willing to pay) with those who can offer a ride. These marketplaces are still under regulatory review in California due to questions about liability and insurance. However, these services may provide the ability for individuals to hail a driver "on-demand" from their phone. These platforms may work for shorter trips within Flagstaff or potentially longer trips to other regional destinations. While these services are not free to the end-users, they do provide additional transportation options. NAIPTA's role in coordinating with these types of businesses would be to establish a framework for them to operate in Flagstaff in addition to marketing their services to transportation users.

Whether operated internally, or through a private company, the intent of these transportation options is to address infrequent, non-daily trips. Daily commute trips will be discussed in the next section.

## 5.4.2 Supplemental Services

This section is intended to describe potential future services that would cater towards more frequent trips (such as daily commute trips) or services that would help support transit by providing an alternative to owning a second car.

### Vanpool and Carpooling

Vanpool programs may be organized formally through an employer or less formally through coordination services that match riders with similar commute patterns. Typically, vanpools utilize passenger vans that carry between seven to 15 passengers (including the driver). The vehicle itself may be owned by one of the vanpoolers or it may be leased from a vanpool rental company. These types of services often work best when van riders' origins or destinations are clustered relatively close together.

Carpools may be formal—arranged through an employer, public website, etc. —or casual, where the driver and passenger might not know each other or have agreed upon arrangements. Carpooling is the shared use of a car by the driver—usually the owner of the vehicle—and one or more passengers. When carpooling, people either get a ride or offer a ride to others instead of each driving separately. Carpooling arrangements and schemes involve varying degrees of formality and regularity.

[17] For more information, please see: http://web1.ctaa.org/webmodules/webarticles/anmviewer.asp?a=776

In the case of either vanpooling or carpooling programs, NAIPTA would not operate either service directly, but could play an active role in matching potential riders together and providing information about the benefits of vanpooling and carpooling. Furthermore, NAIPTA could play a role in marketing these types of programs to major employers or the general public. Costs for such coordination efforts would depend largely on level of involvement. Specific to vanpooling and carpooling, numerous third-party vendors (such as VPSI) offer online platforms that coordinate ride-matching services. Costs to NAIPTA may include up-front costs to set up such a platform and staff time to promote and answer questions about the program.

### Carsharing (Traditional or Peer to Peer)

Carsharing is a rental car service that offers vehicles for rent by the hour or a similar shorter time period than conventional rental car services. The service reduces the need for businesses or households to own their own private vehicles, reducing transportation costs and vehicle miles traveled (VMT). Carshare vehicles available near a person's place of work or school can enable them to commute to work via other means, and use a car during the day only as needed.

Traditional carsharing companies and Peer to Peer (P2P) operate similarly from the perspective of the user (driver); however, they are somewhat structurally different from the vehicle owner perspective. Traditional carsharing companies (such a Zipcar) own their fleet of vehicles whereas a P2P provides a platform from which car owners can rent out their vehicles for a fee. In either scenario, NAIPTA could play a role in coordinating the introduction of carsharing services in Flagstaff. It is unlikely that NAIPTA would take any direct role in implementing a carsharing service; however, staff costs may be incurred to attract carsharing services to Flagstaff and then marketing the program to potential participants. A second alternative is contracting with a vendor that can provide the technological resources to establish a carsharing program with the City of Flagstaff providing vehicles.

### Bicycle Sharing Program

Bicycle sharing is a form of bicycle rental where people access a shared fleet of bicycles on an as-needed basis. Bicycle sharing programs provide safe and convenient access to bicycles for short trips, such as running errands or transit work-trips. The international community has experimented with bicycle sharing programs for nearly 40 years. Until recently, bicycle sharing programs worldwide have experienced low to moderate success; in the last five years, innovations in technology have given rise to a new (third) generation of technology-driven bicycle sharing programs. These new bicycle sharing programs can dramatically increase the visibility of cycling and lower barriers to use by requiring only that the user have a desire to bicycle and a smart card, credit card, or cell phone. Similar to carsharing, NAIPTA would likely play a very small role in implementing any type of bicycle sharing program. However, it could play a major role in marketing and promoting a program to its users.

### Guaranteed Ride Home Program (GRH)

A GRH program (sometimes called emergency ride home) provides an occasional subsidized ride to commuters who use alternative modes, but need a ride home in unforeseen circumstances. Typically, alternative modes that are qualified within program rules include transit, carpooling, vanpooling, bicycling, and walking. A GRH program is somewhat different than the previously noted programs

since it is not a direct transportation service; instead, it provides a sense of security that one could have the flexibility to go home in a hurry if needed.

Several studies have found that GRH home programs result in greater use of alternative modes. The Victoria Transport Policy Institute summarized these studies: One survey of transportation commuters found that 59% of rideshare and transit patrons consider GRH important in their decision to use alternative modes.[18] Finally, another survey found that the availability of GRH has a value roughly equivalent to subsidized transit fares at a fraction of the cost."[19] As a regional provider of transportation services, NAIPTA could take an active role in administering a GRH program to support alternative commute options. In terms of costs, GRH programs require some staff time for ongoing administration of the program and coordination between transportation providers of rides. Furthermore, funding is necessary for the actual cost of providing emergency rides home.

### 5.4.3 Mobility Manager

The programs described here are subject to further discussion about what may best fit the needs of the Flagstaff community. All of these programs help support a transit-focused lifestyle by providing mobility choices for those who do not have access to a vehicle or prefer driving alternatives in Flagstaff. The first step in implementing any of these programs is developing a comprehensive approach to how these types of programs may complement the existing fixed-route and paratransit services offered by NAIPTA. Many transportation agencies are developing positions for "Mobility Managers" who can help develop, organize, and administer multifaceted transportation programs that may include the programs described above. It is suggested that as resources become available, NAIPTA investigate creating a role for a Mobility Manager to support basic mobility and supplemental services. Depending on an agency's needs, a Mobility Manager could be responsible for a variety of roles. The National Resource Center of Human Service Transportation Coordination (NRC) provides examples of Mobility Manager job descriptions from around the United States.

From the NRC[20], the roles of Mobility Managers focus on the following:

- Moving people instead of moving vehicles.
- Discrete travel needs of individual consumers.
- Customer needs.
- The entire trip, not just that portion of the trip on one mode or another.
- Making visible improvements to the effectiveness, efficiency, and quality of the travel services being delivered.

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[18] K.T. Analytics (1992), *TDM Status Report; Guaranteed Ride Home*, Federal Transit Administration, USDOT (www.fta.dot.gov/library/planning/tdmstatus/FTAGUAR2.HTM).

[19] John D. Hunt and JDP McMillan (1998), *A Stated Preference Examination of Attitudes Towards Carpooling to Work in Calgary*, Transportation Research Board Annual Meeting (www.trb.org).

[20] Mobility Manager Job Descriptions. National Resource Center for Human Service Transportation Coordination. http://web1.ctaa.org/webmodules/webarticles/anmviewer.asp?a=372

- Designing and promoting transit-oriented developments, livable cities, and energy-efficient sustainable communities.
- Improving the information available about those services.

## 5.5 20-Year Service Summary

Table 5-5 summarizes key service changes in the short-, mid-, and long-term service plans. Detailed summary sheets are included in the Appendix. Term (Year 6 – Year 10)

**Table 5-5. Summary of Short-, Mid- and Long-Term Service Plans**

| | Short-Term<br>Year 1 to Year 5 | Mid-Term<br>Year 6 to Year 10 | Long-Term<br>Year 11 to Year 20 |
|---|---|---|---|
| Mountain Link | ▪ Route 10 extends to Flagstaff Mall. | ▪ Crosstown Rapid (Route 1) shifts to Milton Road and Route 11 (formerly Route 2) provides service through NAU and Bow and Arrow neighborhood.<br>▪ Route 10 (NAU Link) shifts back to serve NAU campus and Woodlands Village. | ▪ Crosstown Rapid (Route 1) extends beyond Woodlands Village to the Flagstaff Pulliam Airport. |
| Mountain Line | ▪ Route 4 provides bi-directional service.<br>▪ Route 3, Route 7 and 66 eliminated and replaced with Routes 200 and 300.<br>▪ Route 15 provides service between NAU and CCC (contingent on funding).<br>▪ Route 100 provides service to Sunnyside, Little America, City Hall and Thorpe Park.<br>▪ Routes 200 and 300 provide new services in Sunnyside area.<br>▪ Route 5 renumbered to Route 500. | ▪ Route 4 replaced with segments of Route 11 and new Route 12.<br>▪ Route 400 introduced in University Heights and Ponderosa Trails. However, alignment and routing still to be determined. | ▪ No changes. |
| Mountain Lift | ▪ Service will expand based on Mountain Link/Line services. | ▪ Service will expand based on Mountain Link/Line services. | ▪ Service will expand based on Mountain Link/Line services. |

| | Short-Term<br>Year 1 to Year 5 | Mid-Term<br>Year 6 to Year 10 | Long-Term<br>Year 11 to Year 20 |
|---|---|---|---|
| Commuter Services | ▪ No services. | ▪ Commuter service introduced to Doney Park and Kachina Village/Mountainaire. | ▪ No changes from mid-term. |
| Supplemental Services | ▪ Introduction of vanpool services.<br>▪ Initiate roles and responsibilities of Mobility Manager. | ▪ Rollout of other supplemental services via Mobility Manager as possible. | ▪ Rollout of other supplemental services via Mobility Manager as possible. |
| Estimated Plan Service Hours | 64,833[21] | 97,619[22] | 102,550[22] |
| Estimated Plan Service Miles | 989,698 | 1,100,297 | 1,156,454 |
| Peak/Base Vehicles in Service (Fixed Route) | 17 / 12[23] | 24 / 15 | 25 / 15 |

## 5.6 Public Comment on Draft Plan

The draft plan was presented to the public for review and comment during the month of February and March. Multiple avenues and opportunities for public input and comment were provided, including:

- Online comment form at Flagstafftransitplan.com.
- Presentations to organizations, committees, and agencies.
- Mobile public open houses.

### 5.6.1 Online Comment Form

The draft plan was posted to *www.flagstafftransitplan.com*. An online comment form was provided to facilitate public input and review of the draft plan. The online comment form asked respondents for their input on the following:

- High frequency transit "spine."
- Three transit hubs for fast, easy, connections.
- New areas served.
- Convenient two-way bus service on Lone Tree Road and Milton Road.

[21] Does not include Route 15
[22] Includes 4,800 hours for "Supplemental Services"
[23] Does not include vehicles for Route 15 service

- Convenient, direct bus service between NAU and CCC.
- Commuter service from Cheshire to Downtown.
- Potential regional transit routes in coordination with other agencies.
- 10-Year Horizon.

The majority of comments that were submitted were in support of the improvements as proposed in the draft plan. A few commenters expressed concerns about the proposed service plans. These comments included the following:

*High Frequency Transit Spine:*

- One commenter expressed concern about extending Route 10 on Cedar Avenue. They suggested that Route 66 is a better alternative.
- A commenter expressed concern about the untimed nature of Route 10. They prefer the predictable nature of scheduled time transfers.
- Several commenters requested service to Foxglenn Park, University Heights, University Highlands, and Ponderosa Trails.

*Potential Regional Transit Routes:*

- A commenter suggested that service to Williams and Winslow may not be of benefit.
- Highest priority should be to serve the City of Flagstaff; don't subsidize low-density development patterns.
- Consider service options to selected locations on the Navajo and Hopi nations including the new casino.

*Commuter service from Cheshire to Downtown*

- Coordinate with Flagstaff Arts and Leadership Academy to serve their student's schedules.

*10-Year Horizon:*

- A commenter stated that city neighborhoods should be served before expanding beyond city limits. The commenter requested transit service to west Route 66 to Woody Mountain Road and the Railroad Springs area.

*Open Comments:*

- Additional comments were submitted requesting service to west Route 66, and in areas such as Country Club Estates, University Highlands.
- Make it possible to "subscribe" to monthly passes online to have them mailed to you automatically.

### 5.6.2 Presentations to Organizations, Committees, and Agencies

NAIPTA staff presented the draft plan to multiple organizations, committees, and agencies. These are listed in the Appendix. The Appendix table also includes key comments that were made at the meetings.

### 5.6.3 Mobile Public Open Houses

As an additional opportunity to comment, NAIPTA positioned a not-in-service bus at strategic locations around Flagstaff. Community members were invited to board the bus, view information regarding the draft plan, and provide comments. Comment forms were available on the buses.

Table 5-6 is a list of locations where the bus was located. General themes heard from the public included the following:

- Extend transit service on West Route 66 to Woody Mountain Road.
- Provide service on Route 5 on weekends.
- Extend service hours to later at night.
- Provide service to University Heights.
- Provide more transit service on the weekends.

**Table 5-6. Mobile Public Open House Locations**

| Date | Time | Location | Address |
|---|---|---|---|
| 3/1/2013 | 6:00 pm - 9:00 pm | First Friday ArtWalk | Heritage Square |
| 3/4/2013 | 10:00 am - 12:00 pm | Walmart | 2601 W. Huntington Drive |
| 3/4/2013 | 1:00 pm - 4:00 pm | Northern Arizona University | Student Union - Ped Way |
| 3/5/2013 | 12:00 pm - 2:00 pm | Thorpe Senior Center | 245 N. Thorpe Road |
| 3/5/2013 | 3:00 pm - 5:00 pm | Aspen Place at the Sawmill | New Frontiers Parking Lot |
| 3/6/2013 | 9:00 am - 11:00 am | Flagstaff City Hall | Wheeler Park Parking Lot |
| 3/6/2013 | 12:00 pm - 2:00 pm | Flagstaff Medical Center | 1200 N. Beaver Street |
| 3/6/2013 | 3:30 pm - 5:30 pm | Aquaplex | 1702 N. 4th St. |
| 3/7/2013 | 3:00 pm - 5:00 pm | NAIPTA Transfer Center | Downtown |

### 5.6.4 Changes to Draft Plan

Public comment was largely supportive of the draft service plans. In response to public comment, the draft service plans were modified to extend transit service to west Route 66 to Woody Mountain Road. After review by NAIPTA and in consultation with the study team, no other significant modifications to the draft service plan were made. Other suggestions made by the public that are not able to be incorporated into the plan at this time may be reconsidered in the future as the mid-term and long-term plans are plan is implemented.

# 6.0 CAPITAL PROJECTS

Implementation of the service plans as described in Chapter 5 will require investment in several new capital projects. This chapter describes proposed capital projects:

- A new East-side Transit Center near the Flagstaff Mall.
- Expanded maintenance and operations facility.
- Arterial street transit improvements.
- Park-and-ride lots in Doney Park and Kachina Village.

Capital projects are defined at a planning level. Where appropriate, preliminary concepts are presented and a planning-level cost estimate is provided.

## 6.1 East-side Transit Center

The short-, mid-, and long-term service plans all propose more transit service to east Flagstaff. To support the increased transit service, a new East-side Transit Center is proposed near the Flagstaff Mall. Three potential concepts are proposed that meet the following goals:

- Accommodates three NAIPTA bus routes and additional transit providers.
- Six bus bays for loading/unloading and layovers.
- Two supervisor/maintenance vehicle spaces.
- Comfort station for drivers (including break room and rest room).
- Three car-share space/pod.
- Electric vehicle charging stations.
- Ability to expand the site to accommodate approximately 30 vehicles for park-and-ride service.

- Emphasize pedestrian safety and connectivity to adjacent land uses.

The East-side Transit Center should be planned and developed in coordination with other regional transit service providers including Navajo Transit and Hopi Transit.

### Concept No. 1 — On-Site at Flagstaff Mall

This concept for the East-side Transit Center is located at the Flagstaff Mall, south of Office Max and west of Mall Way. This concept is shown in Figure 6-1. In this concept, buses would access the site from Mall Way using the existing mall access. This concept would involve repaving and improving a section of existing parking at the Flagstaff Mall. An advantage of this concept is that less area is required to construct the transit center as compared to other concepts. However, pedestrian circulation is not optimal; bus riders must walk across the bus lanes to reach the bus stops/shelters. The availability of this land for a transit center is unknown. Key features of this concept are:

- Area: 1.08 acres/47,215 square feet.
- Parking spaces: 48 spaces.
- Bus parking: six bays.
- Amenities: comfort station, six bus shelters.
- Construction cost: $1.1M (excluding land).

Table 6-3 summarizes the planning-level construction cost for this alternative. The East-side Transit Center may also be ideal location for electric vehicle charging stations. As plug-in hybrid and battery electric vehicles ownership expands, there may be a need for publicly accessible charging stations. Charging stations could be provided by a private company at a fee to the vehicle owner. Costs for electric charging stations are not reflected in the estimated construction costs for the East-side Transit Center.

Table 6-1. Planning-Level Construction Cost for Concept 1 – On-Site at Flagstaff Mall

| Item | Quantity | Unit | Unit Cost | Value |
|---|---|---|---|---|
| Asphalt | 1,525 | SY | $25.00 | $38,125.00 |
| HD Concrete (Bus Lane) | 2,575 | SY | $135.00 | $347,625.00 |
| Concrete (Sidewalk) | 6,530 | SF | $5.00 | $32,650.00 |
| Concrete Curb | 1,990 | LF | $8.00 | $15,920.00 |
| Landscape and Irrigation | 17,810 | SF | $4.00 | $71,240.00 |
| Comfort Station | 1 | EA | $100,000.00 | $100,000.00 |
| Bus Shelter | 6 | EA | $20,000.00 | $120,000.00 |
| | | | **Subtotal** | **$725,560.00** |
| | | | 10% Site Furnishings | $72,556.00 |
| | | | Other Contingencies, Fees, Bonds, Overhead, and Profit | $163,251.00 |
| | | | **Total** | **$961,367.00** |
| | | | Sales Tax - Flagstaff | **$90,810.73** |
| | | | **Total** | **1,052,177.72** |

**Figure 6-1. Concept 1 – On-Site at Flagstaff Mall**

### Concept 2A – Southeast Corner of Marketplace Drive and Mall Way

Concept 2A is located on the southeast corner of Marketplace Drive and Mall Way, directly across the street from the existing on-street 3-bay shelter on Mall Way. This concept is shown in Figure 6-2. In this concept the buses circulate north of the transit center parking area in a one-way pattern from East Marketplace Drive to Mall Way. Pedestrians can access the bus stops directly from the street, but must cross the bus lane to reach the stops from the parking area. Key features of this concept are:

- Area: 1.81 acres/78,930 square feet.
- Parking spaces: 30 spaces, consider electric vehicle charging station (not reflected in construction cost estimate).
- Bus parking: 6 bays.
- Amenities: comfort station, six bus shelters.
- Construction cost: $1.3M.

Table 6-2 summarizes the planning-level construction cost for this alternative.

**Table 6-2. Planning-Level Construction Cost for Concept 2A – East-side Transit Center**

| Item | Quantity | Unit | Unit Cost | Value |
|---|---|---|---|---|
| Asphalt | 2,270 | SY | $25.00 | $56,750.00 |
| HD Concrete (Bus Lane) | 2,670 | SY | $135.00 | $360,450.00 |
| Concrete (Sidewalk) | 13,530 | SF | $5.00 | $67,650.00 |
| Concrete Curb | 2,530 | LF | $8.00 | $20,240.00 |
| Landscape and Irrigation | 33,960 | SF | $4.00 | $135,840.00 |
| Comfort Station | 1 | EA | $100,000.00 | $100,000.00 |
| Bus Shelter | 6 | EA | $20,000.00 | $120,000.00 |
| | | | **Subtotal** | **$860,930.00** |
| | | | 10% Site Furnishings | $92,093.00 |
| | | | Other Contingencies, Fees, Bonds, Overhead, and Profit | $193,709.25 |
| | | | **Total** | $1,146,732.25 |
| | | | Sales Tax - Flagstaff | **$108,320.33** |
| | | | **Total** | **$1,255,052.58** |

**Figure 6-2. Concept 2A — East-side Transit Center**

## Concept 2B – East-side Transit Center

Concept 2B is a variation of concept 2A, and is also located on the southeast corner of Marketplace Drive and Mall Way, directly across the street from the existing three-bay shelter on Mall Way. This concept is shown in Figure 6-3.

In this concept the buses circulate at the south side of the parking, in a one-way pattern from East Marketplace Drive to Mall Way. The advantage of Concept 2B over 2A is that pedestrians can access the bus shelters directly from the street and the parking area without crossing the bus lane. Key features of this concept are:

- Area: 83,000 square feet, 1.9 acres.
- Parking spaces: 53 spaces, consider electric vehicle charging station (not reflected in construction cost estimate).
- Bus parking: six spaces.
- Amenities: comfort station, six bus shelters.
- Construction cost: $1.1M.

Table 6-3 summarizes the planning-level construction cost for this alternative.

### Table 6-3. Planning-Level Construction Costs for Concept 2B – East-side Transit Center

| Item | Quantity | Unit | Unit Cost | Value |
|---|---|---|---|---|
| Asphalt | 3,305 | SY | $25.00 | $82,625.00 |
| HD Concrete (Bus Lane) | 1,435 | SY | $135.00 | $193,725.00 |
| Concrete (Sidewalk) | 13,640 | SF | $5.00 | $68,200.00 |
| Concrete Curb | 2,210 | LF | $8.00 | $17,680.00 |
| Landscape and Irrigation | 38,870 | SF | $4.00 | $155,480.00 |
| Comfort Station | 1 | EA | $100,000.00 | $100,000.00 |
| Bus Shelter | 6 | EA | $20,000.00 | $120,000.00 |
| | | | **Subtotal** | **$737,710.00** |
| | | | 10% Site Furnishings | $73,771.00 |
| | | | Other Contingencies, Fees, Bonds, Overhead, and Profit | $165,984.75 |
| | | | **Total** | $977,465.75 |
| | | | Sales Tax - Flagstaff | **$92,331.41** |
| | | | **Total** | **$1,069,797.16** |

**Figure 6-3. Concept 2B – East-side Transit Center**

## 6.2 Maintenance and Operations Center

In 2009, NAIPTA opened a new Transit Operations Center located at 3773 N. Kaspar Drive, Flagstaff. The new transit operations center resulted from rehabilitation of an existing car dealership that was originally constructed in 1975. The rehabilitation and construction served as Phase 1 of a two-phase build-out. Phase 1 included new offices and covered parking for a maximum fleet size of 13 fleet vehicles. Phase 2 improvements were to include a bus storage facility, wash bay, and fuel island.

The Transit Operations Center was jointly funded by the Federal Transit Administration (FTA) and the City of Flagstaff. Funds were not available to complete Phase 2 improvements.

Upon opening in 2009, Phase 1 improvements provided sufficient accommodations for approximately 70% of NAIPTA's bus fleet. However, based on expansions that have been implemented since 2009 in response to ballot measures approved by Flagstaff voters, including the Mountain Link (Route 10) in 2011, new hybrid electric buses, expanded neighborhood service, and in an increase in bus frequency on three routes, the existing Kaspar facility does not have adequate indoor storage capacity for the existing fleet. Currently, roughly half of NAIPTA's 20 vehicle fleet is left uncovered nightly.

NAIPTA understands the importance of daily preventative maintenance. An expansion of the Operations Center is paramount to keeping the fleet in good repair. Proposed Operations Center

Phase 2 improvements will reduce washing labor by 50% and water usage by 40%. The addition of the fuel island will yield approximately $50,000 annual savings in off-site fuel costs and operator expenses, and enable the fleet to be serviced and maintained at a more expedient rate.

In February 2012, NAIPTA submitted a Bus and Bus Facilities Program: State Of Good Repair application to the Federal Transit Administration (FTA). The application requested funding for a Transit Operations Center: Phase 2 construction that includes:

- Bus storage facility to hold 32 buses (19,995 square feet).
- Bus washing building (3,076 square feet).
- Fueling canopy (2,240 square feet).
- Remodeling of existing bays in the administration building into additional office and drivers support space (8,000 square feet).
- Expansion of parking (22 spaces).
- Separation of personal vehicle circulation from bus entry/exit to the Operations Center.

The estimated cost was $6,000,000 with a requested share under the State of Good Repair grant for approximately $4,200,000. Funding was not provided.

As NAIPTA implements the service plans as proposed in Chapter 5.0, the need for Phase 2 improvements and an expanded bus storage facility will become more critical. The proposed Phase 2 facility expansion is important to meet NAIPTA's existing needs, and to provide fleet storage for the expanded fleet that will be required to implement the service plans as presented in Chapter 5.0.

**Table 6-4. Fixed Route Vehicle Requirements for Short-, Mid-, and Long-Term Horizons**

| Planning Horizon | Fixed Route Vehicle Needs (Including Spares) | Non-Fixed Route Vehicle Needs | Total Vehicle Storage Needs |
|---|---|---|---|
| Short-Term | 19/(23)[24] | 8 | 31 |
| Mid-Term | 24/(29)[25] | 9 | 38 |
| Long-Term | 25/(29)[26] | 10 | 39 |

Existing NAIPTA storage facility accommodates 13 buses; an expanded facility will accommodate 32 buses

## 6.3 Arterial Street Transit Improvements

Improving transit system speed and reliability are integral to its success in serving patrons, business, and the community at large. As noted in Chapter 4, "Fast Crosstown Travel" was rated as a top three route design priority—patrons desire a transit system to be quick and efficient, reducing the time it takes to reach destinations. Improving efficiency and speed in congested areas is particularly important, and critical to the success of the proposed Route 1 (Crosstown Rapid).

[24] Based on assuming that Route 15 is funded (peak need of 19 vehicles)

[25] Based on an assumed peak vehicle need of 24 vehicles (20% spare ratio of 4.8 buses)

[26] Based on assumed peak vehicle need of 25 vehicles (20% spare ratio of 5 buses)

This section presents potential improvements (categorized into short-, mid-, and long-term phases) along congested corridors that can be implemented to improve the speed, efficiency, and reliability of transit service in downtown Flagstaff and other congested corridors.

The following are locations that may be considered for infrastructure improvements to improve transit service for existing and potential patrons:

- Downtown Flagstaff on Beaver Street and San Francisco Street.
- Milton Road.
- NAU Campus.

### 6.3.1 Downtown Flagstaff

Downtown Flagstaff is a vibrant activity center that naturally serves as a confluence of regional and local transportation activity. Major regional transportation facilities that converge downtown are US 180, Route 66, and the BNSF Railroad. Local facilities include Beaver Street and San Francisco Street, which connect northern designations of the city and downtown to the NAU campus. On-street parking, pedestrians, and bicyclists all add to the multimodal nature of the downtown area.

While downtown is a major destination for transit patrons as well as a connection to the NAU campus, bus operators have expressed concern about driving on San Francisco Street. San Francisco Street, particularly between Route 66 and Cherry Avenue, is narrow, has 10-foot travel lanes, and high-turnover on-street parking. Bus operators have expressed concern about near-crashes with parking vehicles, cyclists, and pedestrians along the narrow corridor.

## Short-Term Improvements

### *Yield to Bus City Ordinance*

NAIPTA and the City of Flagstaff frequently receive requests to construct bus pullouts so that vehicles may move freely past buses while passengers board and de-board the bus. However, as traffic volumes increase, the task of re-entering traffic from a bus stop or pullout becomes increasingly difficult for bus operators. A typical operator may pull into and out of dozens of stops in an 8-hour shift. The potential delay caused by the inability to merge back into traffic contributes to bus delay (especially during peak periods), slower vehicle speeds, and reduced system efficiency.

NAIPTA drivers have expressed concern about difficulties they have when trying to reenter the traffic stream after stopping at bus stops and bus pullouts. NAIPTA has initiated conversations with City of Flagstaff to develop a "Yield to Bus" ordinance that would allow transit vehicles the right of way to reenter traffic flow under certain conditions. When a bus signals its intention to re-enter traffic, drivers approaching from the rear or in the lane adjacent to the bus are required to slow or stop to allow the bus to merge. Buses would be equipped with an indicator light for a "YIELD" sign mounted to the rear of the bus that could be turned on at the discretion of the bus operator. An example of an indicator light is shown below. Failure to yield could be a moving traffic violation punishable with a fine.

**Figure 6-4. Rear-Mounted Yield Sign**

Many states have "Yield to Bus" laws and ordinances. These include California, Colorado, Florida, Minnesota, New Jersey, Oregon, and Washington. Such an ordinance in Flagstaff would reduce bus delays, and increase bus system speed and efficiency.

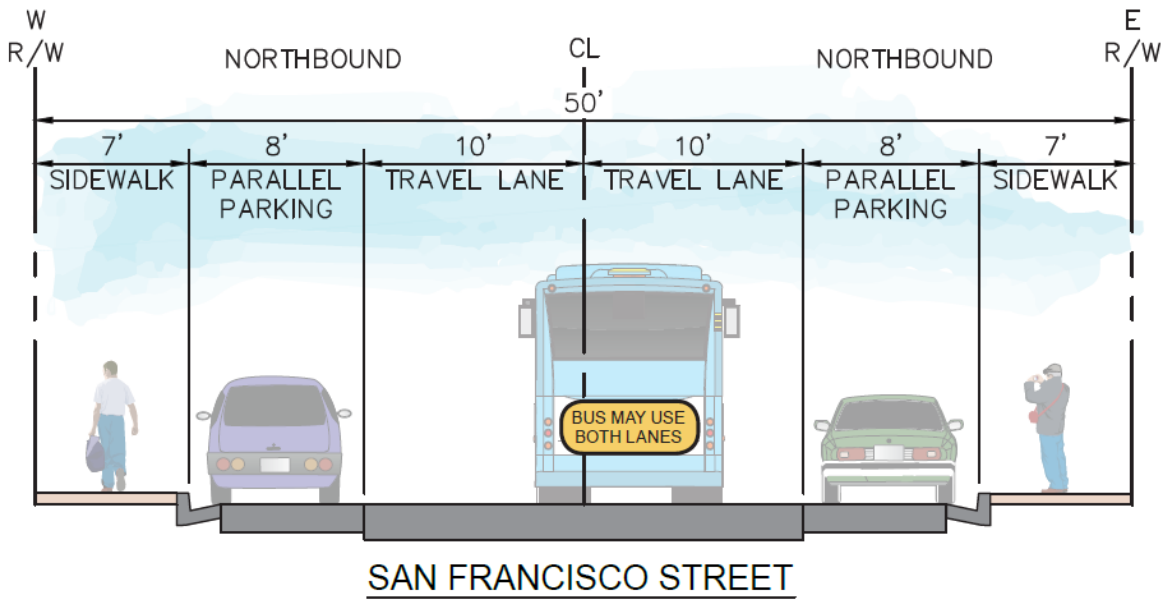
### *Bus May Use Both Lanes City Ordinance*

In addition to the "Yield to Bus" ordinance, it is proposed that NAIPTA buses be authorized, through City Ordinance, to occupy two travel lanes in downtown Flagstaff—particularly on San Francisco Street. Upon entering downtown Flagstaff as buses approach the BNSF Railroad on San Francisco Street, rear flashers installed on the buses would be activated drawing attention to a rear-mounted sign that would read "BUS MAY USE BOTH LANES" or "YIELD". Enabling buses to use both lanes allows them to move to the left, away from parked cars, reducing the potential for crashes. This greater separation also allows buses to increase their

average operating speed through this segment. A schematic of how a bus would travel on San Francisco Street, with the "BUS MAY USE BOTH LANES" or "YIELD" is depicted in Figure 6-5.

In several cities, straddling the roadway centerline is considered common when narrow roadway widths exist. Examples include Portland, Boston, Seattle and San Francisco, where lane widths can be as narrow as 9' or 10' along transit corridors. In most of these places, no official policy about lane straddling is in place, but it is a necessity. One relevant precedent may be Minneapolis-St. Paul where transit vehicles are authorized to use highway shoulder lane during peak hours. Shoulder lanes are 10' and buses frequently cross over the white shoulder line in standard operations.

**Figure 6-5. San Francisco Street "BUS MAY USE BOTH LANES"**




## Long-Term Improvements

The short-, mid-, and long-term service plans presented in Chapter 5.0 propose an extension of Route 10 (Mountain Link) and introduction of Route 1 (Crosstown Rapid). Each of these routes will be high-frequency service (frequencies every 20 minutes or better). The success of each of these routes is dependent upon increasing the reliability, average speed, and efficiency of buses traveling the routes; for example, along Milton Road.

The term bus rapid transit (BRT) refers to an integrated system of facilities, equipment, services, and amenities that improve the speed, reliability, and identity of bus transit. Unlike standard bus services, BRT generally operates in dedicated or preferentially treated running ways. These running ways, whether for the exclusive use of transit vehicles or shared with other traffic, typically provide priority treatments that reduce bus travel times.

### *Bus Rapid Transit*

BRT improvements are proposed as long-term capital projects along Beaver Street, San Francisco Street, and Milton Road. BRT improvements along the proposed Route 1 and Route 10 may be implemented in segment phases or along the full length of the corridors. For planning purposes, BRT can be grouped into the following based on level of investment and system elements:

#### Rapid Bus

Typically the least costly to implement of BRT modes, rapid bus often operates in shared travel lanes and may benefit from transit signal priority at intersections, dedicated/specifically designed stops, and improved waiting passenger amenities. Vehicles may be specifically branded. *This is similar to the existing Mountain Link (Route 10).*

#### Arterial BRT

This type of BRT may operate partly or entirely in dedicated lanes. Where it does not operate in a dedicated running way, special features such as queue jump lanes may be provided at intersections to reduce delays and improve performance. This type of BRT typically includes transit signal priority at intersections and dedicated/specifically designed stops/stations with station bulb outs for additional passenger space and easier boarding into the buses. It may utilize off-board fare collection. Vehicles may be specifically branded. *This level of BRT investment, subject to additional study and master planning, is proposed for consideration on corridors such as Beaver Street, San Francisco Street, and Milton Road.*

#### Full BRT

This type of BRT operates similar to the way light rail transit operates. It typically runs mostly or entirely in dedicated lanes (or a running way) and benefits from transit signal priority treatment. High-investment full BRT typically includes permanent station facilities at stop locations that include passenger accommodations similar to those provided at light rail stations. Vehicles are specifically branded in this type of BRT and often resemble rail cars with an aerodynamic appearance.

### *Dedicated Transit Lanes*

Arterial BRT improvements, as identified above, may include partly or entirely dedicated lanes. Dedicated transit lanes are proposed for consideration, as long-term capital projects, on Beaver Street, San Francisco Street, and Milton Road to improve patron travel time and efficiency of buses within these corridors. Dedicated transit lanes would enable buses to bypass heavily congested areas. The dedicated transit lanes would be accompanied by other BRT improvements as described above. Emergency vehicles would be able to utilize the dedicated transit lanes when operating with lights and sirens.

Possible configurations for dedicated transit lanes include side-running lanes, median-running lanes, mixed-flow lanes, or combinations thereof, as summarized in Table 6-5.

### Table 6-5. BRT Lane Configuration Options

| Lane Used | Pros | Cons | Best Use |
|---|---|---|---|
| **Side-Running Transit Lanes** | • Easier for pedestrian access.<br>• Easier to co-locate BRT stations with local bus stops, since local buses already use the right lane. Transfers are facilitated.<br>• Allows use of standard vehicles with right-side boarding.<br>• Stations are located outside the traveled way; patrons may feel safer waiting at side of road near pedestrians and businesses, rather than in the center of the road.<br>• Lane can be shared with other local bus service. | • On-street parking, if it remains, will partially conflict with bus movements.<br>• Transit lane is interrupted by right-turning vehicles at intersections.<br>• Requires two separate stations at each stop (one for each direction) and therefore greater infrastructure cost than median stations.<br>• Enforcement of lane use.<br>• Potential bicycle integration conflicts.<br>• Travel lane is removed. | • Peak hour application.<br>• Restricted lane use.<br>• Turning vehicles allowed. |
| **Median Transit Lanes** | • Conveys strong transit priority image.<br>• More efficient use of space at stations, since buses can board from both sides of a single center platform.<br>• Because a single station serves both directions of travel, station costs are lower for both initial construction and ongoing maintenance.<br>• Eliminates conflicts with right turns, parking maneuvers, and bicycles.<br>• Easier to implement completely dedicated transit lanes, as opposed to shared lanes with general traffic.<br>• May be more acceptable to the business community, since stations are not located in front of businesses. | • Requires contra-flow configuration with buses traveling on the left side of the centerline, unless specialized left-boarding vehicles are used.<br>• Depending on available space, may require reduction or elimination of landscaped medians.<br>• Requires all patrons to make a street crossing to reach the station or to connect from local buses.<br>• Typically, the existing median width is already being used for left-turn pockets. The median transit lane would either remove the left-turn lane or relocate it. Removal of the left-turn lane would cause backups and safety concerns in the through lane. Relocation of left-turn lanes may require elimination of an additional through lane. Left turns across a transit lane can cause line-of-sight difficulties and safety issues. Some left-turn lanes may need to be closed, which would concentrate access at fewer intersections. | • 24/7 bus only guideway. |

### 6.3.2 Milton Road Bus Rapid Transit

As previously discussed, the new Route 1 will serve the many activity centers on Milton Road. Milton Road contains multiple destinations that are important for transit patrons. However, Milton Road is also one of the most congested corridors in Flagstaff. During peak rush-hour periods, buses and motor vehicles experience significant delay due to congestion. Efficient, reliable, and predictable high-frequency bus service cannot be implemented effectively on Milton Road as currently configured. Implementation of BRT and transit-only lanes on Milton Road will require a near complete reconstruction of the roadway, access management, and significant pedestrian access improvements.

Figure 6-6 is an example of a side-running, transit-only lane in Tucson, Arizona. This example is a dedicated transit lane with a bike lane. Vehicles are allowed to use the combined transit/bike lane to make right turns.

**Milton Road Corridor Improvements**

Milton Road is one of the most congested corridors in Flagstaff. As such, Route 1 recommendation are contingent upon future improvements to Milton Road to include transit speed enhancements such as transit-only lanes, signal priority, and other treatments to ensure speed reliability in this critical corridor. Roadway, streetscape, and gateway improvements, in collaboration with redevelopment of land uses that are conducive to transit will improve conditions for both transit and the pedestrian environment.

Potential application of a side-running transit lane configuration for Milton Road is depicted in Figure 6-7 and Figure 6-8. The configuration shows a combined side-running transit/bike lane. A street section is shown in Figure 6-7 and a plan view section is shown in Figure 6-8.

**Figure 6-6. Example of Side-Running Transit-Only Lane in Tucson, Arizona**

### 6.3.3 Fourth Street Corridor Transit and Pedestrian Improvements

The Flagstaff Regional Plan 2030 identifies the Fourth Street corridor as a significant new activity center with land uses that are complementary to transit. The City of Flagstaff completed the Fourth Street Corridor Master Plan (Draft, 2010) to create a conceptual master plan that provides a

framework for public and private improvements to Fourth Street. The intent of plan is to foster development of Fourth Street as a destination, a pedestrian-friendly, multimodal corridor which creates a unique sense of place and spurs economic development.

The Fourth Street Corridor Master Plan proposes development of a transit park by the alignment of the Cedar/Lockett intersection. The transit park will provide a queuing and transfer point for Mountain Line bus routes. These improvements will facilitate implementation of the short-, mid-, and long-term service planes.

Also critical to the success of Fourth Street, and transit service to the Sunnyside area are adequate pedestrian facilities. Without improved pedestrian facilities, Fourth Street will remain a street dominated by vehicles. Providing a safe, comfortable and interesting environment for pedestrians is one of the most important goals of the Fourth Street plan. For transit to be successful, adequate pedestrian facilities including sidewalks and crossings must be provided to help pedestrians safely and comfortably access transit service on Fourth Street.

### Articulated Buses

Mountain Link (Route 10), the high-frequency bus service linking Downtown Flagstaff, NAU and Woodlands Village has exceeded ridership expectations. In October 2012, Mountain Link served over 90,000 riders. During peak periods of the day, the buses are full and allow for standing room only.

As additional high frequency routes are implemented, including the new Route 1 and enhanced Route 10, articulated buses may be considered as an alternative to increase capacity particularly during peak periods.

The articulated buses shown below are 62 feet long compared to a standard 40-foot bus and can carry up to 120 riders.

## Bus Rapid Transit Master Plan

It is recommended that NAIPTA, FMPO, ADOT, and City of Flagstaff collectively develop a Bus Rapid Transit Master Plan. The purpose of the BRT Master Plan will be to identify, define, and prioritize BRT improvements. The master plan should review BRT opportunities, needs, and constraints for the entire length of Route 1 and Route 10 including Milton Road, Beaver Street, San Francisco Street, and Fourth Street. The master plan should address:

- BRT corridor identification and selection with particular focus on Milton Road, Beaver Street, and San Francisco Street in downtown Flagstaff.
- Ridership assessment of potential BRT corridors.

- Proposed station locations and conceptual station improvements.
- Corridor improvement concepts for locations/segments including a block by block assessment of the need for a transit lane and potential concepts.
- Area-wide parking strategies should be developed to address the potential loss of on-street parking on Beaver Street and San Francisco Street. This could include implementing back-in angle parking on Beaver Street and San Francisco Street, as well as intersecting cross streets. Parking should be reviewed at a district/community level, as opposed to individual property owners.
- Traffic signal pre-emption, including pre-emption schemes at the BNSF Railroad crossing.
- BRT corridor implementation plan.
- Probable capital, construction, and operating/maintenance costs.
- Funding mechanisms.

The master plan would serve as opportunity to collaborate with other regional transportation improvements—such as the Lone Tree Overpass. Traffic analysis conducted for the Lone Tree Overpass Study[27] demonstrates that construction of the Lone Tree overpass will reduce future traffic volumes on San Francisco Street and Beaver Street. If the Lone Tree Overpass is constructed, traffic volumes on Beaver Street and San Francisco north of Route 66 through downtown will be reduced, as compared to the no-build alternative, by 2,000 to 3,000 vehicles per day. Future 2030 daily traffic volumes on Beaver Street and San Francisco Street, with construction of the Lone Tree overpass, will range from 5,000 vpd to 7,000 vpd. Subject to additional analysis, one travel lane on Beaver Street and San Francisco Street may be sufficient to accommodate the projected 2030 traffic volumes, enabling the opportunity to convert one of the existing two travel lanes on Beaver Street and San Francisco Street to a dedicated transit lane. Construction of the Lone Tree overpass is critical to the success of efficient transit on Beaver Street and San Francisco Street.

[27] Lone Tree Overpass Study, Final Report, April 2010

**Figure 6-7. Milton Road BRT Concept – Street Section**

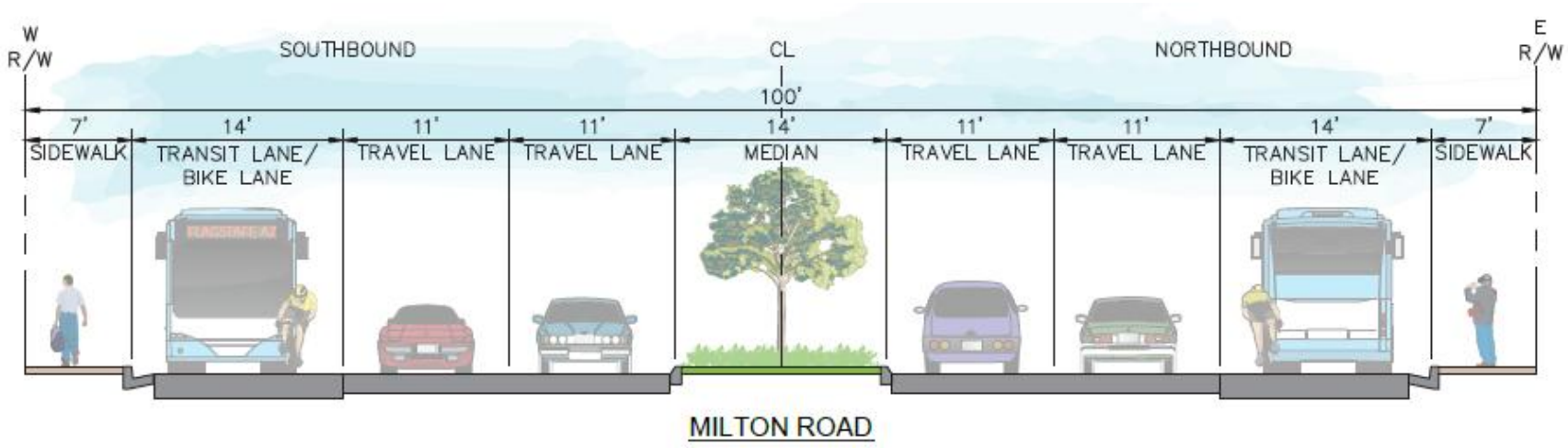


**Figure 6-8. Milton Road BRT Concept – Plan View Section**

### 6.3.4 NAU Transit Way Bus Pullouts

Route 10 currently utilizes the Beaver Street transit way along with dozens of NAU campus shuttle buses. Through field observations during peak periods, at some of the highest loading/unloading areas, queuing was observed between Route 10 buses and the shuttles. Shuttle bus pullouts are suggested at key locations such as the Northern Arizona University Bookstore and the Biological Sciences Building. The proposed shuttle bus pullouts would enable Route 10 buses to pass shuttle buses, improving the efficiency and reliability for both Route 10 and NAU campus shuttle buses. In addition, bus pullouts would also facilitate emergency vehicle access during high queuing times.

## 6.4 Park-and-Ride Lots

Park-and-ride lots are parking facilities where commuters can park their personal vehicles and transfer to a carpool, a vanpool, or bus for the remainder of their trip. Formal and improved park-and-ride lots may encourage the formation of vanpools and carpools by providing a convenient central location for participants to park.

Park-and-ride lots are proposed, contingent upon funding availability, in Doney Park and Kachina Village to support vanpool and daily commuter as proposed in the mid-term service plan.

### 6.4.1 Doney Park

#### Short-Term Vanpool Service

Transit service in Doney Park is initially proposed as supplementary vanpool service that may be facilitated by NAIPTA. A vanpool is a prearranged group of five to 15 people who share their commute. The group enjoys a low monthly fare and a comfortable commute in an eight-, 12-, or 15-passenger van, usually provided by a local transit authority, nonprofit group, employer, or service such as VPSI, Inc. Members—usually coworkers or people who work in the same vicinity—volunteer to drive, fuel, clean, and schedule maintenance and repair for the van.

The Silver Saddle Trading Post, located at the intersection of Silver Saddle/US 89, is proposed as a potential vanpool gathering location. Considerations to designating a vanpool gathering location are obtaining permission to use a section of parking (typically at the perimeter of the exiting parking lot) and posting signs to make people aware of the designated parking area. The proposed location at the intersection of Silver Saddle Road/US 89 provides convenient access to US 89. The existing business located at this intersection, Silver Saddle Trading Post, may benefit as vanpool patrons purchase food and beverages before and after their commute trip.

Another potential location that could serve as a collecting area for vanpool service is Peaks View Park, located within Doney Park. A local church may also provide another opportunity for a vanpool gathering location. Churches often provide ideal locations for vanpool gathering locations since commuter hours are different than those utilized by church patrons, resulting in a complementary relationship.

### Mid-Term Park-and-Ride Lot Improvements

If regional funds become available and the vanpool service proves successful, the mid-term service plan proposes regular commuter bus service to Doney Park. A formal park-and-ride lot is proposed to facilitate the regional commuter service.

The Silver Saddle Trading Post at the intersection of Silver Saddle/US 89 is proposed as a potential location for a park-and-ride lot. The park-and-ride lot may include a public/private partnership where improvements to the parking area are made on land owned by the market. The Silver Saddle Trading Post may benefit from transit riders who patronize the market as they congregate for the vanpool or commuter service. Improvements to the Silver Saddle park-and-ride lot include a bus shelter, bus bay, and parking for up to 40 vehicles.

Table 6-6 summarizes the costs associated with the park-and-ride lot improvements at Silver Saddle Road/US 89, which is illustrated in Figure 6-9. Key features of this concept are:

- Area: 0.5 Acres /23,855 SQ FT.
- Parking spaces: 30 spaces (with room available to expand to 40 spaces), consider electric vehicle charging stations (not reflected in construction cost estimate).
- Bus parking: one bus bay.
- Amenities: one bus shelter.
- Construction cost: $95,000.

Park-and-ride lots may also be ideal locations for electric vehicle charging stations. As plug-in hybrid and battery electric vehicles ownership expands, there may be a need for publicly accessible charging stations. Charging stations could be provided by a private company at a fee to the vehicle owner. Costs for electric charging stations are not reflected in the estimated construction costs for the park-and-ride lots.

**Table 6-6. Cost Summary for Vanpool Lot at Silver Saddle Road/US 89**

| Item | Quantity | Unit | Unit Cost | Value |
|---|---|---|---|---|
| Asphalt | 0 | SY | $25.00 | $0.00 |
| HD Concrete (Bus Lane) | 0 | SY | $135.00 | $0.00 |
| Concrete (Sidewalk) | 2,960 | SF | $5. 00 | $14,800.00 |
| Concrete Curb | 85 | LF | $8.00 | $680.00 |
| Landscape and Irrigation | 5,200 | SF | $4.00 | $20,800.00 |
| Comfort Station | 0 | EA | $100,000.00 | $0.00 |
| Bus Shelter | 1 | EA | $20,000.00 | $20,000.00 |
| | | | **Subtotal** | **$56,280.00** |
| | | | 10% Site Furnishings | $5,628.00 |
| | | | 30% Asphalt/Paving Contingency | $16,884.00 |
| | | | Other Contingencies, Fees, Bonds, Overhead, and Profit | $14,914.20 |
| | | | **Total** | **$93,706.20** |

**Figure 6-9. Concept for Vanpool Lot at Silver Saddle Road/US 89**

### 6.4.2 Kachina Village/Mountainaire

Vanpool service is also proposed as a supplemental service for Kachina Village and Mountainaire. If regional funds become available and the vanpool service proves successful, the mid-term service plan proposes regular commuter bus service to Kachina Village. A formal park-and-ride lot in Kachina Village is proposed to facilitate the commuter bus service.

### Short-Term Vanpool Service

Raymond Park, located near I-17 and Kachina Boulevard, may provide an initial opportunity to serve as a gathering location for vanpool service. The park, located on the northwest quadrant of the Kachina Blvd interchange with I-17, is a convenient gathering point for residents from both Kachina Village and Mountainaire. This will require collaboration and coordination with Coconino County Parks and Recreation.

### Mid-Term Park-and-Ride Lot Improvements

If the vanpool service proves successful and regional funds are provided, daily commuter bus service is proposed in the mid-term service plan. The daily commuter bus service will originate from a park-and-ride lot and connect to downtown Flagstaff. A potential location for a park-and-ride lot is the existing parking lot at Raymond Park in Kachina Village. The existing parking lot may be improved to include a bus shelter and space for a 40-foot bus. The existing parking lot at Raymond Park currently has room for 36 vehicles. Table 6-7 summarizes the costs associated with the potential park-and-ride lot at Raymond Park, which is illustrated in Figure 6-9. Key features of this concept are:

- Area: .43 acres /18,535 SQ FT.
- Parking spaces: 36 spaces, consider electric vehicle charging stations (not reflected in construction cost estimate).
- Bus parking: one space.
- Amenities: one bus shelter.
- Construction cost: $65,000.

The southeastern parking lot has room for an additional 24 vehicles. If Raymond Park is utilized as a park-and-ride location, additional parking may need to be constructed. This may be difficult because of the adjacent wetlands. Other sites may need to be identified. These sites may be investigated for the feasibility of a park-and-ride lot.

**Table 6-7. Cost Summary for Vanpool Lot in Kachina Village**

| Item | Quantity | Unit | Unit Cost | Value |
|---|---|---|---|---|
| Asphalt | 0 | SY | $25.00 | $0.00 |
| HD Concrete (Bus Lane) | 0 | SY | $135.00 | $0.00 |
| Concrete (Sidewalk) | 2,340 | SF | $5.00 | $11,700.00 |
| Concrete Curb | 350 | LF | $8.00 | $2,800.00 |
| Landscape and Irrigation | 1,550 | SF | $4.00 | $6,200.00 |
| Comfort Station | 0 | EA | $100,000.00 | $0.00 |
| Bus Shelter | 1 | EA | $20,000.00 | $20,000.00 |
| | | | **Subtotal** | **$40,700.00** |
| | | | 10% Site Furnishings | $4,070.00 |
| | | | Other Contingencies, Fees, Bonds, Overhead, and Profit | $18,315.00 |
| | | | **Total** | **$63,085.00** |

**Figure 6-10. Concept for Park-and-Ride Lot at Raymond Park**

# 7.0 TECHNOLOGICAL REVIEW

The application of new technologies to transit has the ability to improve numerous aspects of service. These improvements or enhancement may have a positive influence on operations, safety, planning efforts, or customer experience. The purpose of this section is to ensure that the transit service plan developed from this planning process is complemented with appropriate intelligent transportation system (ITS) solutions to maximize benefits.

## 7.1 Review of NAIPTA Intelligent Transportation System Plan

In December 2011, NAIPTA completed a FTA-compliant Intelligent Transportation Plan that addresses major ITS projects and strategy priorities for the agency. This document provides a broad framework for ITS projects that should be pursued by NAIPTA. The ITS Plan also documents the major technology-related efforts that are currently in place. These include:

- Security cameras on fixed-route service.
- Online transit stop information and trip planning via Google Transit.
- Programmable LED signage on newer vehicles.
- Automatic vehicle locators (AVL) on many vehicles.
- Use of TransLoc software to provide real-time arrival information for customers and operations staff.
- An interactive Mountain Line website.

The full listing of NAIPTA ITS Projects and Strategy Priorities include those listed in Table 7-1.

**Table 7-1. Existing NAIPTA ITS Projects and Strategy Priorities (Based on 2011 ITS Plan)**

| | Strategy And Priority | Priority |
|---|---|---|
| Passenger Services | Pre-Trip Information | |
| | Interactive Website | Existing/High |
| | Mobile, Tablet, and Similar Platforms and "Apps" | Existing/High |
| | Additional/Enhanced Kiosks | Existing/High |
| | 511 Systems | Low |
| | Google Transit | Existing |
| | TransLoc | Existing |
| | En-Route Information | |
| | Mobile, Tablet, and Similar Platforms and "Apps" | Existing/High |
| | LED Information/Signs (exterior) | Existing/Pending/High |
| | Automatic Fare Collection | High |
| | Annunciators | Medium |
| | Carpool Ridematching, Reservations | Medium |
| | 511 Systems | Low |
| | Google Transit | Existing |
| | TransLoc | Existing |
| Operations | Automatic Vehicle Locator/Computer Aided Dispatch | Existing/High |
| | Performance Monitoring/Travel Time | Existing/Medium |
| | Driver Communications (Radio) | Existing |
| | Transit Signal Priority | Medium |
| | Vehicle System Monitoring (maintenance) | Low |
| | TransLoc | Existing |
| Safety | Collision Warning/Avoidance on Vehicles | Low |
| | Onboard Security Cameras | Existing |
| Data | Automatic Passenger Counting (Boarding/Alighting) | Medium |
| | Data Management Systems (GIS, others) | Medium |

Since the release of the 2011 ITS Plan, several notable ITS-related improvements have been implemented. These include:

- System-wide AVL capabilities (including TransLoc capabilities).
- Mobile data terminals for paratransit (Mountain Lift) service.

## 7.2 Proposed Modifications to NAIPTA ITS Plan

The ITS projects and strategy priorities outlined in the 2011 ITS Plan are largely consistent with the service plan recommendations for the next five years. However, three modifications to the existing ITS Plan are recommended.

First, "Performance Monitoring/Travel Time" should be increased in priority from "Medium" to "High." This change is due to the increase in the length of Mountain Link, which will require increased focus and attention on maintaining headways on this high-frequency service. Second, "Transit Signal Priority" should be raised from a "Medium" priority to a "High" priority. Considering a desire to increase overall system speed, increasing speed through signalized intersections is a high priority. Finally, with the inclusion of the "Transportation Safety Net" services that include an expansion of services such as carpooling, ridematching, and vanpooling, it is recommended that the "Carpool Ridematching, Reservations" project be moved to a "High" priority.

Considering these modifications, "High" priority ITS projects for the next five years include the following:

**Table 7-2. High Priority ITS Projects to Support Future NAIPTA Service Plan**

| Existing (E) Or New (N) High Priority Its Project | Strategy |
|---|---|
| E | Interactive Website |
| E | Mobile, Tablet, and Similar Platforms and "Apps" |
| E | Additional/Enhanced Kiosks |
| E | LED Information/Signs (exterior) |
| N | Automatic Fare Collection |
| N | Carpool Ridematching, Reservations |
| E | Automatic Vehicle Locator/Computer Aided Dispatch |
| N | Performance Monitoring/Travel Time |
| N | Transit Signal Priority |
| N | Automatic People Counters (APCs) |
| N | On-board Camera Upgrades |

To supplement the work that has already been completed on some of these projects, the following sections present considerations for implementation of the above high-priority projects.

### *7.2.1 Additional/Enhanced Kiosks*

Currently, NAIPTA operates real-time information kiosks on Beaver Street at the origination point of Route 10 near the Downtown Transfer Center, and on NAU campus. The kiosks consist of a full-screen diagram of vehicle locations. This amenity has been beneficial for waiting passengers and for operators wishing to see their location relative to others operators on the route. In the future, it is

anticipated that TransLoc technology will provide real-time transit information for many riders on their mobile phones. However, it is recommended that at several key transfer locations, real-time arrival information kiosks be provided if feasible. Key locations include the portions of 4th Street in Sunnyside (stops served by numerous routes), the Downtown Transfer Center, East-side Transit Center, some on-street transfer locations and potentially the Flagstaff Pulliam Airport (long-term).

### 7.2.2 Automatic Fare Collection

The transit industry is trending toward a broader use of smart card technology. This method for collecting fares can realize a number of benefits, but can also raise issues that require addressing when planning for or implementing the new technology. The following sections summarize the differences between the magnetic stripe card technology and the smart card technology.

Magnetic strip cards (or tickets) have been the mainstay of automated fare collections systems for some time. Cards can be made from paper or plastic stock and store data on a thin magnetic tape stripe on the back of the card. The ability to read and write data onto these cards has provided a number of benefits including:

- Provision of broad range of fare media including day passes, multi-ride passes, stored-value cards, and time-period passes.
- Encoding of fare media at Ticket Vending Machines (TVMs), at card stock vendors, and/or at fareboxes onboard buses.
- Issuance and validation of transfers.
- Lowered fare evasion levels and reduced level of operator/passenger conflicts.
- Capturing of improved ridership data.
- Production using low-cost paper stock.
- Production of custom cards printed with agency-developed designs and pre-encoded for specific fare instruments.

While magnetic strip cards are fairly reliable in the transit industry, the reading of magnetic stripe cards is a highly mechanical process, requiring the card to be physically inserted into the reader unit where the card is passed by magnetic heads. The tracks storing data can be corrupted by long-term exposure to high magnetic fields, or more often physical damage, especially when involving thin paper stock cards.

### 7.2.3 Smart Cards

Smart cards can be considered the next-generation transit fare collection instrument. They store data on a memory chip embedded in the card instead of the magnetic tracks on the surface of magnetic strip cards. For most transit applications, radio frequency identification (RFID) technology is employed to allow the reading and writing of data without requiring the card to be in physical contact with TVMs or farebox equipment. Smart cards realize similar benefits to those associated with magnetic strip cards and offer the following additional benefits:

- Greater data storing capability.

- Contact-less operation eliminates the need to physically insert or swipe card at the farebox, speeding up boarding time.
- Card registration to individual riders facilitating the replacement of lost cards, enabling the online recharging of cards; and the management of individual passenger's participation in university or corporate pass programs.
- Interoperability allowing the use of common cards across multiple transit agencies as well as opportunities to use credit/debit cards, or existing identification cards for transit fare collection.

Smart cards are available on thinner plastic card stock for limited use passes or on thicker cards for long-term pass/card holders. Costs for smart cards are higher than those associated with magnetic strip cards, but the costs are coming down, especially for limited-use cards. Card costs are often mitigated by the charging of customers for cards or replacement cards. The enhanced features associated with a smart card system often present new or increased complexities. As a result, both agency staff and the riding public will need education on how to use smart cards at the time the technology is implemented.

Table 7-3 below lists the major advantages and disadvantages of smart cards relative to magnetic strip cards.

**Table 7-3. Smart Card Advantages and Disadvantages**

| | | |
|---|---|---|
| **Enhanced Data Collection** | + | Embedded memory chips have higher capacities and data is transferred quickly. In addition to tracking data on pass types, smart card application typically track data on rider groups such as students participating in a university pass program. |
| **Reduced Dwell Time** | + | Contact-less operation reduces the customer transaction time at the farebox. |
| **Durability** | + | The embedded memory chip is protected from minor physical damage and not impacted by magnetic fields. |
| **Card Cost** | - | The per-unit cost of smart cards is high relative to paper magnetic strip tickets. Thin, limited use smart cards are less expensive and available for transfers, day passes etc. |
| **Point of Sale Complexities** | - | Smart cards are typically encoded for specific uses requiring the registration of a card to a user or the loading with a requested number of trips or dollar amount – typically done at Ticket Vending Machines or at agency encoding devices. Magnetic strip cards are often used when doing mass distribution of pre-encoded cards to retail locations. |
| **Agency Staff Learning Curve** | - | Taking full advantage of the smart card feature set will require staff training on fare collection system software as well as on the farebox and TVM equipment. |
| **Passenger Learning Curve** | - | Customers will require training on how to procure and maintain (adding trips or value) smart card instruments, and how to use them when boarding a bus. |

Smart card impact relative magnetic stripe: - Negative Impact ---------O Neutral---------- + Positive Impact

### *7.2.4 Automatic Vehicle Locator / Performance Monitoring*

NAIPTA has implemented automatic vehicle locator systems (AVL) on all vehicles within the Mountain Link, Mountain Line, and Mountain Lift fleet.

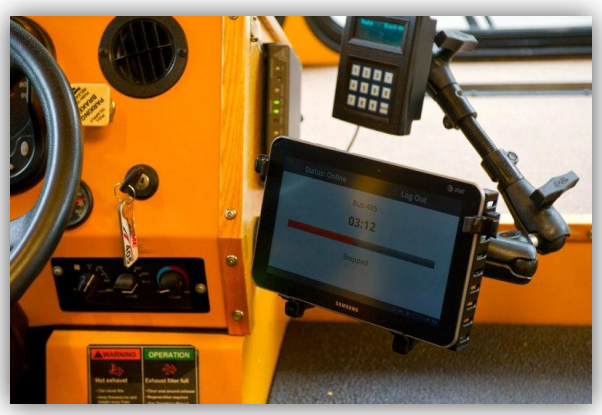
AVL systems enable numerous reporting functions for various audiences. It allows NAIPTA to automatically communicate the location and status of its vehicles to waiting passengers while providing information to operations dispatchers about issues and schedule anomalies for routes in service. Dispatchers and operations personnel use the AVL software to track the status and locations for all revenue vehicles. In addition, AVL software can be used to manage communications between vehicles and dispatch. Using AVL for operations can be a major change for dispatchers. Dispatchers have immediate access to real-time information for the entire fleet, including the prioritization of which vehicles require support or intervention from in-field road supervisors.

AVL systems provide transit patrons in Flagstaff with real-time information through the use of TransLoc (already employed on Mountain Link). This will be a particularly important element of the service plan for routes that are not anticipated to have a published schedule due to high frequencies of service. In addition, it will be a foundational element to ensure headway management on scheduled routes such as the rapid services.

It is recommended that an automatic annunciation system be included that can announce approaching bus stops. These systems increase reliability of stops being announced clearly and on-time. These systems also take additional responsibility off of bus operators, allowing them to focus on other tasks.

Presently, Route 10's protocol for headway management involves verbal radio coordination between the various buses in service along the route. With the proposed Rapid extension, it will be critical to ensure that headway management continues to be coordinated with minimal confusion. One case study that has been employed to solve this problem was undertaken on a university campus in Atlanta. Georgia Tech researchers recently employed a tablet-based application for on-campus shuttles that use AVL data, pre-determined route timings, and built-in resilience to account for delays or detours. The application uses this technology to provide each vehicle timing cues for stop departure to help balance and equalize headways. The advantage of this software is that it can automatically self-equalize headways based on changes in the current field operation (including bus removals, additions, and route changes). More information on this technology can be found at: http://www2.isye.gatech.edu/~jjb/papers/Bartholdi-Eisenstein-2011.pdf.

**Figure 7-1. Tablet-Based Headway Management Installed on Vehicle**



### 7.2.5 Transit Signal Priority[28]

Transit Signal Priority (TSP) modifies traffic signal timing at intersections to give priority to transit operating in mixed traffic. TSP has the ability to better accommodate transit vehicles while ensuring that typical operations and signal cycle length can be maintained. Different from signal preemption[29], TSP is a minor adjustment in signal phasing enabling signal green time that may stay longer or start sooner to reduce transit delay at intersections. This is referred to as the "green extension/red truncation" concept. The expanded transit phase time is recovered during the following signal cycle. TSP can be activated on board by the transit operator or automatically using vehicle-based technology. In many cases, automated TSP will be tied to an automatic vehicle location (AVL) or automatic passenger counter (APC) system that can determine if priority should be given. Examples include if a bus is behind schedule or if there are a certain number of passengers on-board.

TSP systems are most effective in areas with significant traffic congestion and can increase average travel speed and reduce travel time variability. Preliminary candidates in Flagstaff include Route 66/Santa Fe Avenue, 66/4th Avenue, Milton Road between downtown and Interstate 17, and sections of downtown (Beaver Street/San Francisco Street). Locations for TSP will be further explored in the BRT Master Plan as proposed in Chapter 6. A basic guideline is to apply TSP when there is an estimated reduction in bus delay with negligible change in general traffic delay. For mainline TSP to be effective, it is important that transit stops be located on the far side of signalized intersections so that a bus activates the priority call and makes its stop after the intersection.

### 7.2.6 Automatic People Counters

Automatic People Counters (APCs) are important tools for both reporting and planning purposes. APCs units are installed on board transit vehicles at boarding doors and count passengers as they board and alight. APC units typically rely on infrared sensors that detect objects as they move past. The data from APC units are typically fed wirelessly to data management centers that can then output estimated counts. More advanced data management programs will automatically assign the passenger count information to specific routes, runs and stops (if AVL data is available). Once obtained, NAIPTA could use this information to provide near-time passenger ridership information on a route by route basis. This data could be used for purposes of performance reporting and/or service planning.

APCs provide great advantages since they can collect data without any operator involvement. However, additional time may be required at the back end of the reporting process to clean any errant data and interpret data results. Furthermore, on high passenger ridership routes that approach crush-load capacity, APC data can be skewed. This often occurs due to passengers standing in the doorway and causing the infrared sensors to misread boarding and alighting data.

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[28] Elements of this description are taken from Transit Cooperative Research Program Report 83: Bus and Rail Transit Preferential Treatments in Mixed Traffic.

[29] Signal preemption typically triggers a signal to change from red to green (breaking a typical signal cycle) upon the approach of an appropriately equipped transit vehicle.

### 7.2.7 On-Board Camera Upgrades

Presently, NAIPTA vehicles utilize on-board cameras to help monitor bus activity for purposes of safety and security. These cameras provide a useful benefit as a deterrent for prohibited activities and also provide a reviewable record in the case of any incidents. Current camera technology relies on recordable tape that must be removed from the bus to be reviewed. While this is useful for purposes for providing evidence, it does not provide any real-time value. It is proposed that NAIPTA investigate upgrading its on-board video camera technology to enable live-feeding of on-board camera information for review by NAIPTA staff. This type of technology can enable a better informed and fast response to a potential on-board incident. In addition, in enables operations staff to review in real-time vehicle occupancy and "crush load" capacities that may exist on its routes.

# 8.0 FINANCIAL PLAN

This chapter presents the twenty-year Financial Plan for NAIPTA's operational and capital programs. Major new capital expenditure costs are also included. However, costs estimates for those elements are detailed in Chapter 6 of the Transit Plan.

## 8.1 Financial Plan Assumptions

The information presented in this document is based on coordination with NAIPTA staff. Existing and future revenues are based on historical data and estimates of financial resources available for providing service. The key assumptions that serve as the building blocks for the next twenty years include:

- The financial plan time horizon is described in terms of year of the plan (i.e., year one, two, etc.).
- In 2008, the City's transit tax was renewed through City election. This service plan assumes that the current tax (set to expire in 2020) will be renewed through the duration of this planning process (year 20) and potentially increase in 2018 (see below).
- Additional funding resources will be available to expand the current transit system by year five. These currently unknown resources are assumed to increase 50% above baseline by year five. This increase in resources will be available through the duration of the planning process (through year 20).
- Inflation (CPI) will remain in the range of 2 and 3%.
- For years with service hour increases, ridership is assumed to increase in proportion to service hours based on 2014 estimated passengers per service hour. For other years, it is assumed ridership increases between 1. 5% and 3%, annually.
- Passenger fares are based on 2014 estimated average fare per passenger, revenues increase at CPI (however, dates of fare increases are not explicitly specified).

- For estimating purposes, contributions from NAU are assumed to increase at CPI, annually.
- Mountain Line will continue receiving funds from a variety of federal sources including FTA Section 5307 and Small Transit Intensive Communities (STIC) funds. Given the passage of the "Moving Ahead for Progress in the 21st Century Act" (MAP-21), changes will undoubtedly occur in the types and levels of federal funding available to fund transit operations and capital improvements for NAIPTA. For purposes of the financial plan, any major vehicle capital expenses are covered at 80% by federal funding.
- Federal funding after year six of the plan is assumed to increase at 2% per CPI.
- No fare increase is assumed in the short-term, but fare increases are likely in the mid-term and beyond. Furthermore, express and other "premium" services such as commuter services will be offered at a higher price. Additional information regarding fare increases is found later in this chapter.
- Capital costs include existing schedule of bus and van replacement costs in addition to new buses needed to meet service plan and 20% spare ratio (spare ratio target is above 25%). Commuter services are anticipated to use a combination of existing Hybrid 35' vehicles in combination with 30-35' medium-duty vehicles.
- Vehicle replacement is based on a 12-year fixed route vehicle and seven-year medium-duty vehicle replacement cycle.
- Vehicle costs are held consistent with existing NAIPTA vehicle cost estimates.
- Shelters, pads and installation costs are consistent with NAIPTA projections, levels plus inflation after year seven.
- Facility costs and transfer center costs include existing costs between FY2013-2014; no additional costs are included at this time.
- No additional route construction costs are included at this time.
- Additional marketing costs and communication efforts related to service changes are not included at this time.
- County contributions for regional and commuter services are not included as revenue sources at this time.
- Operational costs are based on service plan estimated service hours, using an estimated cost per hour of $70.53 for fixed-route services and $85.00 for commuter services. This does not include administrative costs (calculated separately based on NAIPTA's estimates).
- Short-term cost estimates include Route 15, which is suggested to be funded as a joint effort including NAIPTA and local educational institutions. Those revenues are not included in the plan at this time.

## 8.2 Operating Costs

### 8.2.1 Mountain Line and Link Operating Plan

In the short-term, Mountain Line and Link operating costs will increase in direct proportion to the increase in service hours. Presently (FY 2014), combined Mountain Line and Mountain Link service is projected to operate approximately 58,432 service hours (not including resources for Mountain

Lift). The proposed short-term service plan will utilize approximately 64,833 service hours to operate the service (not inclusive of NAU-CCC Route 15; approximately 3,840 services hours per year). Implementation of the short-term service plan will require additional funds if Route 15 is implemented. However, it is possible to implement the short-term service plan without additional operational resources (capital needs such as bus stop changes, signage, and other elements would be an additional and separate cost).

The mid-term service plan increases the provided service hours to 97,619 and the long-term to 102,550 hours. Under both the medium- and long-term service plans, it is assumed there will be additional resources available for transit service.

The large increases in service hours are attributable to higher frequencies of service on key routes (such as Mountain Link) and proposed 30-minute frequency service to the Flagstaff Pulliam Airport.

### 8.2.2 Mountain Lift Operating Plan

Mountain Lift services are anticipated to expand due to the expansion of the Mountain Link and Mountain Line services. Lift services are anticipated to continue to provide services within City limits. Financial resources dedicated to services are steadily slated to increase per inflation.

### 8.2.3 Other Operational Costs

Other key operational costs include supplemental services and administrative costs. As noted above, supplemental and mobility "safety net" services will formally begin in year six of the plan and will increase per CPI for the lifetime of the plan. Similarly, administrative costs are currently anticipated to increase per CPI for the lifetime of the plan. However, it is likely that the start of the mid-term service plan in year six will incur increased administrative costs associated with expanding services (including a Mobility Manager role and other front-line staff).

While no supplemental service resources are allocated in years one-five of the plan, it is assumed that low-cost options such as vanpools could be accommodated in the near term, in addition to establishing a foundation for a future Mobility Manager position.

## 8.3 Capital Costs

### 8.3.1 Vehicle Costs

The financial plan considers both fleet replacement and fleet expansion needed to support the proposed service plan. Vehicle lifespan assumptions used for this plan include seven years for medium-duty vehicles for Mountain Lift and 12 years for hybrid buses for Mountain Line and Mountain Link. It is assumed that after vehicles reach these lifetimes, vehicles are then replaced. For the purpose of service expansion, it is assumed that the fixed-route fleet expands from 27[30] in year

[30] Current (May 2013) fleet size is 20 vehicles; NAIPTA will be in receipt of 7 additional vehicles in Year 1 of the plan.

one of the plan to 30 in year six (to accommodate for the mid-term service plan). Paratransit vehicles will expand from eight to nine by year six and then 10 by year 11. However, depending on growth, this service expansion may be required to occur earlier. These vehicle fleet sizes are based on maintaining an FTA-suggested 20% spare ratio on top of the peak vehicle weekday needs.

### 8.3.2 Non-Vehicle Costs

Several non-vehicle costs exist such as routine maintenance, replacement and expansion of bus shelters and stops, and costs related to transfer facility expansion and rehabilitation. The financial plan incorporates several of these elements based on existing NAIPTA estimates through FY 2020. Marketing efforts related to service changes are included in non-vehicle capital costs since they are infrequent and may require physical changes to signage, new maps, etc.

In the mid- and long-term several key capital costs that are still in development include potential transit enhancements on high-priority transit corridors such as Milton Road and through downtown Flagstaff. Those costs are not yet included in the financial plan. Capital costs for new infrastructure (e. g., East-side Transit Center, park-and-ride lots) are developed at a type, size, and location level in Chapter 6.

## 8.4 Supplemental Revenue Sources

Presently, key NAIPTA funding sources are based on a combination of local transit tax revenues, passenger fares, federal funds, and contributions from NAU. The level of funding diversity in Flagstaff provides the system some level of resiliency. **The financial plan assumes that any funding gap not met by non-transit tax revenues (passenger fares; federal, state, and county funding; and NAU contributions) is met through local transit tax funds.** Based on current revenue estimates, the transit tax needed to balance expenses by 2033 is approximately 55% higher than today (including inflation).

For the purpose of the financial planning, it is assumed that the variety of revenue sources remains and revenue increases per inflation. Moving forward, additional opportunities for funding may exist. It will be particularly important to pursue these opportunities if NAIPTA returns to voters to request additional funding through transit taxes in the future. It will be important to exhaust all other potential revenue streams before pursuing such an endeavor.

Grant opportunities may also be available for service expansion. For example, Area Agency on Aging may represent a potential grant source for Mountain Lift Vouchers for expansion to outlying areas. Similarly, vanpools may be eligible for Section 5310 Funds.

### 8.4.1 Local Funding Sources

In addition to local sales tax revenues and contributions from NAU, other local funding sources could be applicable to help supplement existing revenues.

#### Fare Increases

Fare increase should be strategic and implemented per policy decision. Mountain Line and Link fares last changed on January 1, 2011. Several factors need to be considered when raising fares, ranging

from how fares are perceived by transit patrons, whether fares are "in line" with peer agencies, to what is the "appropriate" ratio between passenger fares and operating costs. The following guidelines are recommended for NAIPTA consideration:

- Review the average fare and subsidy per passenger and the farebox recovery ratio when developing the annual operating budget. If all three ratios are declining and costs to operate the service are increasing, consider a fare adjustment.
- Monitor the local CPI and if increases are greater than 5% in any given year, consider increasing fares to keep pace with inflation.

### Advertising Revenue

Presently, on-vehicle advertising is sold on NAIPTA vehicles. This potential source of revenue may be expanded in the future. Advertising revenues will likely continue to be nominal and not significant enough to cover a substantial portion of operational or capital costs. In conjunction with City regulations, advertising could be extended to bus shelters and even the NAIPTA facility, all of which have good frontage and high visibility along key transportation corridors.

### Joint Procurement or Maintenance

Considering NAIPTA's maintenance capabilities and facilities, it has the opportunity to provide a variety of maintenance tasks for smaller transportation providers or city services. While NAIPTA vehicles should maintain highest priority, selling maintenance services to other organizations or agencies could be an alternative revenue stream and maximize any "slow" periods, if they exist. Furthermore, this arrangement may open up additional "in-kind" services provided to NAIPTA from other community organizations. However, due to the need for additional liability insurance for this effort, it may not be feasible in the short-term.

#### Major Employer or Educational Relationships

Currently, NAU is one of the major contributors to local transit funding. This relationship and financial contribution is due to NAIPTA's high level of service to NAU clientele (students, faculty, and staff). Other organizations that partner with NAIPTA include Flagstaff Medical Center and Coconino County through the Mountain Line EcoPass program. These discussions could be extended to other major employers and institutions such as Gore Industries, and CCC. A mutually beneficial agreement could be found to provide some level of additional services in return for an annual financial contribution. Most commonly, this is seen with company and university transit passes where a lump sum is paid to the transit agency by an organization in return for free trips for staff or associated individuals to that organization.

NAIPTA has expressed interest in implementing a system-wide UPass that would offer student passes for the entire Mountain Line and Mountain Link system. This opportunity will continue to be explored in collaboration with NAU and CCC.

## *8.4.2 Federal Funding Changes (MAP-21)*

In July of 2012, a new two-year transportation authorization called Moving Ahead for Progress in the 21st Century (MAP-21) was signed into law. MAP-21 governs all funds to public transit agencies through the FTA. MAP-21 provides some significant changes over the previous transportation bill,

including changes in several existing grant programs and some new programs. While this section cannot cover all MAP-21 changes and their applicability to NAIPTA, the following highlights areas of special interest that may warrant further review and research.

- **Grantee Safety Plans**: MAP-21 requires all FTA funding recipients to develop agency safety plans that include performance targets, strategies, and staff training.
- **Transit Asset Management Plans:** All FTA grantees are required to develop a transit asset management plan, which include, at a minimum, capital asset inventories, condition assessments, and investment prioritization.
- **Transit-Oriented Development Planning Pilot:** A new pilot program exists under MAP 21 for transit-oriented development (TOD) planning grants for corridors with new rail, bus rapid transit, or core capacity projects. These plans are intended to seek economic development, ridership, and numerous other goals. $10 million has been allocated towards these pilot projects for both FY 2013 and FY 2014. These types of funds may be applicable to areas such as Sunnyside, which will be obtaining new BRT service and other frequent bus services along 4th Street.
- **Urbanized Area Formula Grants (5307):** Section 5307 funds remain largely the same with some minor changes. One change includes the consolidation of Jobs Access Reverse Commute (JARC) funding. Activities under the former JARC program are now eligible under 5307 with a 50% local match. There is no minimum or maximum amount that can be spent on these types of programs.
- **Enhanced Mobility of Seniors and Individuals with Disabilities (5310):** This program provides formula funding through the states to increase mobility of seniors and persons with disabilities. This program includes the former New Freedom Program (5317).
- **Small Transit Intensive Cities (STIC) Program (5336):** Of special interest to NAIPTA, who is highly competitive in the STIC program, MAP-21 maintained and expanded the STIC program. Critical performance metrics remain the same from previous years. This program is funded at $127.9M between FY 2013 and FY 2014.

## 8.5 Financial Planning Horizon

The tables on the following page provide a high-level estimate of financial expenditures and revenues over the lifespan of the plan. The tables also show a summary of proposed service hours, estimated service miles, and ridership and estimated fare revenues.

**Table 8-1. NAIPTA 20-Year Financial Plan (System Expenses)**

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | Year 11 | Year 12 | Year 13 | Year 14 | Year 15 | Year 16 | Year 17 | Year 18 | Year 19 | Year 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Short-Term Service Plan | | | | | Mid-Term Service Plan | | | | | Long-Term Service Plan | | | | | | | | | |
| **FIXED ROUTE SYSTEM CHARACTERISTICS** | | | | | | | | | | | | | | | | | | | | |
| Proposed Service Hours | 64,833 | 64,833 | 64,833 | 64,833 | 64,833 | 97,619 | 97,619 | 97,619 | 97,619 | 97,619 | 102,550 | 102,550 | 102,550 | 102,550 | 102,550 | 102,550 | 102,550 | 102,550 | 102,550 | 102,550 |
| Estimated Service Miles | 989,698 | 989,698 | 989,698 | 989,698 | 989,698 | 1,100,297 | 1,100,297 | 1,100,297 | 1,100,297 | 1,100,297 | 1,156,454 | 1,156,454 | 1,156,454 | 1,156,454 | 1,156,454 | 1,156,454 | 1,156,454 | 1,156,454 | 1,156,454 | 1,156,454 |
| Estimated Ridership | 2,067,400 | 2,129,400 | 2,193,300 | 2,259,100 | 2,326,900 | 3,112,900 | 3,206,200 | 3,302,400 | 3,401,500 | 3,503,500 | 3,680,500 | 3,754,100 | 3,829,200 | 3,905,800 | 3,983,900 | 4,063,600 | 4,144,900 | 4,227,800 | 4,312,300 | 4,398,600 |
| **SYSTEM EXPENSES** | | | | | | | | | | | | | | | | | | | | |
| **Operations Summary** | | | | | | | | | | | | | | | | | | | | |
| Mountain Link | $1,918,100 | $1,956,500 | $1,995,600 | $2,035,500 | $2,076,200 | $2,830,300 | $2,886,900 | $2,944,600 | $3,003,500 | $3,063,600 | $3,526,700 | $3,597,300 | $3,669,200 | $3,742,600 | $3,817,400 | $3,893,800 | $3,971,700 | $4,051,100 | $4,132,100 | $4,214,800 |
| Mountain Line | $2,654,500 | $2,707,600 | $2,761,800 | $2,817,000 | $2,873,400 | $4,197,500 | $4,281,400 | $4,367,000 | $4,454,400 | $4,543,500 | $4,656,400 | $4,749,600 | $4,844,600 | $4,941,500 | $5,040,300 | $5,141,100 | $5,243,900 | $5,348,800 | $5,455,800 | $5,564,900 |
| Mountain Lift | $854,500 | $871,600 | $889,100 | $906,800 | $925,000 | $943,500 | $962,300 | $981,600 | $1,001,200 | $1,021,300 | $1,041,700 | $1,062,500 | $1,083,800 | $1,105,400 | $1,127,500 | $1,150,100 | $1,173,100 | $1,196,600 | $1,220,500 | $1,244,900 |
| Commuter Services | $0 | $0 | $0 | $0 | $0 | $241,200 | $246,000 | $250,900 | $255,900 | $261,100 | $266,300 | $271,600 | $277,000 | $282,600 | $288,200 | $294,000 | $299,900 | $305,900 | $312,000 | $318,200 |
| Supplemental Services | $0 | $0 | $0 | $0 | $0 | $373,800 | $381,300 | $388,900 | $396,700 | $404,600 | $412,700 | $420,900 | $429,400 | $437,900 | $446,700 | $455,600 | $464,700 | $474,000 | $483,500 | $493,200 |
| Administrative Costs | $1,207,500 | $1,231,600 | $1,256,300 | $1,281,400 | $1,307,000 | $1,902,200 | $1,940,200 | $1,979,000 | $2,018,600 | $2,059,000 | $2,194,700 | $2,238,600 | $2,283,300 | $2,329,000 | $2,375,600 | $2,423,100 | $2,471,500 | $2,521,000 | $2,571,400 | $2,622,800 |
| ***Total Operating Costs*** | ***$6,634,700*** | ***$6,767,400*** | ***$6,902,700*** | ***$7,040,800*** | ***$7,181,600*** | ***$10,488,400*** | ***$10,698,200*** | ***$10,912,100*** | ***$11,130,400*** | ***$11,353,000*** | ***$12,098,500*** | ***$12,340,400*** | ***$12,587,300*** | ***$12,839,000*** | ***$13,095,800*** | ***$13,357,700*** | ***$13,624,800*** | ***$13,897,300*** | ***$14,175,300*** | ***$14,458,800*** |
| **Capital Summary** | | | | | | | | | | | | | | | | | | | | |
| Buses | $0 | $0 | $0 | $0 | $0 | $3,565,000 | $1,468,800 | $0 | $779,100 | $0 | $8,265,700 | $5,108,200 | $4,384,500 | $0 | $0 | $0 | $0 | $8,132,600 | $0 | $0 |
| Medium Duty vans | $0 | $0 | $0 | $0 | $0 | $489,300 | $504,000 | $519,100 | $0 | $0 | $378,100 | $194,700 | $200,600 | $619,800 | $638,400 | $0 | $0 | $465,100 | $239,500 | $246,700 |
| Capitalized Repairs and Rehabilitation | $25,000 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Shelters, Pads and Installation | $664,800 | $101,600 | $101,600 | $101,600 | $101,600 | $101,600 | $101,600 | $114,500 | $116,700 | $119,100 | $121,500 | $123,900 | $126,400 | $128,900 | $131,500 | $134,100 | $136,800 | $139,500 | $142,300 | $145,200 |
| Facility Costs and Transfer Centers | $6,020,000 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Miscellaneous | $674,000 | $10,300 | $10,500 | $10,800 | $11,000 | $11,300 | $11,600 | $11,800 | $12,100 | $12,300 | $12,600 | $12,800 | $13,100 | $13,300 | $13,600 | $13,900 | $14,100 | $14,400 | $14,700 | $15,000 |
| ***Total Capital Costs*** | ***$7,383,800*** | ***$111,900*** | ***$112,100*** | ***$112,400*** | ***$112,700*** | ***$4,167,300*** | ***$2,086,000*** | ***$645,400*** | ***$907,900*** | ***$131,400*** | ***$8,777,900*** | ***$5,439,700*** | ***$4,724,600*** | ***$762,000*** | ***$783,500*** | ***$148,000*** | ***$150,900*** | ***$8,751,600*** | ***$396,500*** | ***$406,900*** |
| **TOTAL SYSTEM EXPENSES** | **$14,018,500** | **$6,879,300** | **$7,014,900** | **$7,153,200** | **$7,294,300** | **$14,655,700** | **$12,784,200** | **$11,557,500** | **$12,038,300** | **$11,484,400** | **$20,876,400** | **$17,780,100** | **$17,311,800** | **$13,601,000** | **$13,879,200** | **$13,505,700** | **$13,775,800** | **$22,649,000** | **$14,571,800** | **$14,865,700** |
| **SYSTEM REVENUES** | | | | | | | | | | | | | | | | | | | | |
| Passenger Fares (on-board) | $934,900 | $953,600 | $972,700 | $992,100 | $1,012,000 | $1,554,200 | $1,585,300 | $1,617,000 | $1,649,300 | $1,682,300 | $1,802,600 | $1,838,700 | $1,875,400 | $1,912,900 | $1,951,200 | $1,990,200 | $2,030,000 | $2,070,600 | $2,112,000 | $2,154,300 |
| Federal Funds (Operating) | $1,119,500 | $1,119,500 | $1,119,500 | $1,119,500 | $1,119,500 | $1,141,900 | $1,164,700 | $1,188,000 | $1,211,800 | $1,236,000 | $1,260,700 | $1,286,000 | $1,311,700 | $1,337,900 | $1,364,700 | $1,392,000 | $1,419,800 | $1,448,200 | $1,477,200 | $1,506,700 |
| Federal Funding (Capital) | $9,147,400 | $81,300 | $81,300 | $81,300 | $81,300 | $3,585,700 | $2,062,700 | $909,400 | $1,127,400 | $514,100 | $7,439,500 | $4,777,300 | $4,213,700 | $1,052,400 | $1,078,400 | $579,000 | $590,600 | $7,480,600 | $806,000 | $824,100 |
| NAU Contribution | $498,800 | $508,700 | $518,900 | $529,300 | $539,900 | $550,700 | $561,700 | $572,900 | $584,400 | $596,100 | $608,000 | $620,100 | $632,500 | $645,200 | $658,100 | $671,300 | $684,700 | $698,400 | $712,300 | $726,600 |
| Other-Existing Misc. Sources | $273,600 | $144,600 | $111,500 | $111,500 | $111,500 | $111,500 | $111,500 | $113,700 | $116,000 | $118,300 | $120,700 | $123,100 | $125,600 | $128,100 | $130,600 | $133,300 | $135,900 | $138,600 | $141,400 | $144,200 |
| Subtotal Non-Transit Tax Revenues | ***$11,974,100*** | ***$2,807,700*** | ***$2,803,900*** | ***$2,833,700*** | ***$2,864,100*** | ***$6,944,000*** | ***$5,485,900*** | ***$4,401,100*** | ***$4,688,800*** | ***$4,146,800*** | ***$11,231,500*** | ***$8,645,100*** | ***$8,158,900*** | ***$5,076,500*** | ***$5,183,000*** | ***$4,765,700*** | ***$4,861,000*** | ***$11,836,400*** | ***$5,249,000*** | ***$5,355,900*** |
| *Transit Tax Needed to Balance the Budget* | *$2,044,400* | *$4,071,600* | *$4,211,000* | *$4,319,500* | *$4,430,100* | *$7,711,700* | *$7,298,300* | *$7,156,400* | *$7,349,500* | *$7,337,500* | *$9,644,800* | *$9,135,000* | *$9,152,900* | *$8,524,500* | *$8,696,300* | *$8,740,000* | *$8,914,800* | *$10,812,600* | *$9,322,800* | *$9,509,800* |
| **TOTAL SYSTEM REVENUES** | **$14,018,500** | **$6,879,300** | **$7,014,900** | **$7,153,200** | **$7,294,300** | **$14,655,700** | **$12,784,200** | **$11,557,500** | **$12,038,300** | **$11,484,400** | **$20,876,400** | **$17,780,100** | **$17,311,800** | **$13,601,000** | **$13,879,200** | **$13,505,700** | **$13,775,800** | **$22,649,000** | **$14,571,800** | **$14,865,700** |

### Table 8-2. Estimated Fixed Route Vehicle Needs

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | Year 11 | Year 12 | Year 13 | Year 14 | Year 15 | Year 16 | Year 17 | Year 18 | Year 19 | Year 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Short-Term Service Plan | | | | | Mid-Term Service Plan | | | | | Long-Term Service Plan | | | | | | | | | |
| Fixed Route Fleet Size | 27 | 27 | 27 | 27 | 27 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| Estimated Peak Service[31] | 19 | 19 | 19 | 19 | 19 | 24 | 24 | 24 | 24 | 24 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Replacement or Expansion Vehicles | - | - | - | - | - | 5 | 2 | - | 1 | | 10 | 6 | 5 | - | - | - | - | 8 | - | - |
| Expiring Vehicles | - | - | - | - | - | 2 | 2 | - | 1 | - | 10 | 6 | 5 | - | - | - | - | 8 | - | - |
| Estimated Cost | $0 | $0 | $0 | $0 | $0 | $3,565,040 | $1,468,797 | $0 | $779,123 | $0 | $8,265,717 | $5,108,213 | $4,384,550 | $0 | $0 | $0 | $0 | $8,132,632 | $0 | $0 |
| Spare Ratio | 42% | 42% | 42% | 42% | 42% | 25% | 25% | 25% | 25% | 25% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% |

Notes: Assuming that NAIPTA is able to construct covered vehicle storage facility with additional vehicle capacity, the estimated number of spare vehicles may be able to be reduced to a spare ratio closer to the FTA suggested 20%.
Vehicle costs based on NAIPTA hybrid fixed route bus estimates.

### Table 8-3. Estimated Non-Fixed Route Vehicle Needs

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | Year 11 | Year 12 | Year 13 | Year 14 | Year 15 | Year 16 | Year 17 | Year 18 | Year 19 | Year 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Short-Term Service Plan | | | | | Mid-Term Service Plan | | | | | Long-Term Service Plan | | | | | | | | | |
| Medium Duty Fleet Size | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Replacement or Expansion Vehicles | - | - | - | - | - | 3 | 3 | 3 | - | - | 2 | 1 | 1 | 3 | 3 | - | - | 2 | 1 | 1 |
| Expiring Vehicles | - | - | - | - | - | 2 | 3 | 3 | - | - | 1 | 1 | 1 | 3 | 3 | - | - | 2 | 1 | 1 |
| Estimated Cost | $- | $- | $- | $- | $- | $489,290 | $503,969 | $519,088 | $- | $- | $378,147 | $194,746 | $200,588 | $619,818 | $638,412 | $- | $- | $465,074 | $239,513 | $246,698 |
| Spare Ratio | 14% | 14% | 14% | 14% | 14% | 13% | 13% | 13% | 13% | 13% | 11% | 11% | 13% | 11% | 11% | 11% | 11% | 11% | 11% | 11% |

Notes: Vehicle costs based on NAIPTA medium-duty vehicle estimates.

[31] Peak service based on Short-Term Service Plan, inclusive of proposed Route 15 (contingent on additional funding).

# 9.0 IMPLEMENTATION STEPS

This chapter discusses the next steps that need to be taken to implement key elements of the short-term service plan beginning in July 2013. This includes key elements distributed over the following categories:

## 9.1 Administration

Implementation-focused tasks that fall under administration include potential staffing increases and establishing institutional relationships to support elements of the service plan. Key administrative tasks across the planning horizon include fully accommodating transit stop locations at large institutions and expanding the staff resources to fulfill supplemental and mobility "safety net" services.

### *9.1.1 Performance Measurement*

Establishing effective performance measures to benchmark service plan implementation is also an important task that falls under the administration category.

MAP-21 will require FTA grant recipients to set performance targets that address forth-coming (anticipated July 2013) USDOT-issued national performance measures. The targets must be incorporated into metropolitan and statewide transportation plans and transportation improvement programs. Examples of performance targets that could be established include:

- Schedule adherence.
- Vehicle breakdowns.
- Safety.
- Subsidy per passenger.

- Passengers per mile.
- Ridership.
- Complaints.
- Revenue, expenses, and cost recovery.
- Cost per vehicle mile.

Metropolitan Planning Organizations (MPOs) will also be required to establish performance targets, to the extent practicable, that are coordinated with FTA grant recipients for safety and state of good repair programs. NAIPTA will continue to coordinate with the FMPO and ADOT as regional and statewide performance measures and targets are established.

## 9.2 Service Operations

Service operations-related tasks are directly related to the operation of the plans. Elements that fall within this category include bus stop relocation, staff training, and other route preparations in advance of service changes.

### 9.2.1 Bus Stop Relocation Guidance

Stop location and relocation will be imperative as part of the short, mid- and long-term plans. High-level guidance that can be used with respect to stop spacing and general guidelines for bus stop placement is provided below.

Guidance for spacing of bus stops is provided in Table 9-1.

Key factors that should be considered when locating bus stops include:

- **Spacing between stops** – balance walking distance vs. bus speeds and reliability; this is the key criterion that all others support.
- **Stop length** – provide adequate curb length to maneuver bus safely into and out of the stop; 65’ is needed for far-side stops, 105’ is needed for near-side stops.
- **Pedestrian access** – provide safe and convenient pedestrian access; locate stops close to intersections and crosswalks.
- **Amenities** – provide adequate space for shelters, benches, trash receptacles and signs as necessary.
- **Safe operations** – adequate site distances and clearance for safe bus operations into and out of the stop.
- **Traffic impacts** – limit impact on adjacent vehicular traffic.
- **Adjacent land use impacts** – minimize impacts on adjacent land uses but locate stops next to major traffic generators, activities and attractions; avoid driveways and “front facing” houses.
- **Americans with Disabilities Act (ADA) accessibility** – ensure access by persons with disabilities.
- **Security/lighting** – select safe, lighted locations.

**Table 9-1. Bus Stop Spacing Guidelines**

| | Key Transit Corridor | | Urban Local | Suburban Local | Express Service |
|---|---|---|---|---|---|
| | With BRT | Other | | | |
| **Minimum Stop Spacing (feet)** | | | | | |
| Moderate to High Density Areas | 1,100 | 1,100 | 900 | 900 | 900 |
| Low Density Areas | 1,300 | 1,300 | 900 | 1,100 | 1,100 |
| **Maximum Stops per Mile** | | | | | |
| Moderate to High Density Areas | 5 | 5 | 6 | 6 | 6 |
| Low Density Areas | 4 | 4 | 6 | 5 | 5 |

*Notes: (1) moderate to high density = greater than or equal to 4,000 persons per square mile; low density = less than 4,000 persons per square mile; (2) in areas where BRT-related service operates in local service mode, local standards apply*

## 9.3 Public Information

To ensure the general public is fully aware and prepared for service changes, a communications and public marketing campaign should be developed for major service changes. The service plan introduces some exciting changes to the Mountain Line and Link systems and these should be capitalized upon when rolled out to the public.

## 9.4 Vehicle Procurement and Capital Expenditures

Vehicle procurement and capital expenditures category describes key implementation steps related to vehicles and infrastructure that are essential for the service plan. This includes buses, vans, shelters, the new East-side Transit Center, and other miscellaneous items.

## 9.5 Plans and Studies

### Bus Stop Policy

It is recommended that NAIPTA and the City collectively develop a bus stop policy. The policy will facilitate coordination between the City, NAIPTA, and developers on the location of bus stops and the infrastructure required at the bus stop. Considerations include passenger service requirements such as demand, comfort and safety, type of bus route being serviced, and the interaction of stopped buses with traffic flow. The policy should address warrants and requirements for bus pullouts.

### NAU/NAIPTA Transit Coordination Study

Per the discussion outlined in the service plan, the Plan recommends the development of a NAU/NAIPTA Transit Coordination Study to fully understand the travel patterns of NAU students, faculty, staff and visitors. The output of a study would provide insights on what types of transit services most effectively serve the diverse travel patterns generated and attracted by NAU. The study would also investigate strategies that enable both NAIPTA and NAU's transportation services to complement each other to meet campus needs and serve interests both on and off campus.

### BRT Master Plan

The Plan recommends arterial BRT improvements to corridors in downtown Flagstaff and Milton Road. The limits and extent of the BRT improvements have not been defined. A BRT Master Plan

should be developed. The corridors identified in this plan on which high frequency service is proposed should serve as the starting point for the BRT Master Plan. These include Milton Road, Beaver Street, San Francisco Street, Cedar Ave, 4th Street, and Route 66. The BRT Master Plan should:

- Meet the objectives of the Flagstaff Regional Plan 2030: Place Matters and explore opportunities for dedicated transit ways, where appropriate.
- Develop an interconnected transportation system that provides transportation choices in the modes and routes of travel.
- Provide a transit system in appropriate areas that is a viable alternative to single-occupant travel.
- Make NAU Link (Route 10) and Crosstown Rapid (Route 1) a preferred mode of choice by creating a network that increases reliability, minimizes delay, and compares favorably to driving times during peak periods.

Elements of the BRT Master Plan should include:

- Selection of BRT corridors with a particular focus on Milton Road, Beaver Street, San Francisco Street, and 4th Street.
- Ridership assessment of potential BRT corridors.
- Identification of station locations and conceptual station improvements.
- Typical sections that illustrate how the proposed transit way and stations will be accommodated in the corridors and determine the preferred and minimum rights-of-way.
- Concepts to mitigate for the potential loss of on-street parking in downtown Flagstaff.

### Bus Stop Accessibility Inventory

It is recommended that NAIPTA conduct a detailed inventory and assessment of bus stop accessibility on existing routes and on proposed routes. The bus stop accessibility inventory will identify bicycle and pedestrian infrastructure such as sidewalk gaps, missing ramps and other infrastructure that is needed to achieve accessibility to bus stops on Flagstaff roadways in compliance with the Americans with Disabilities Act (ADA).

For each existing and future bus stop location, the inventory should evaluate the following:

- Level lift area: does an area exist and does it meet minimum dimensions of five feet wide and eight feet deep; is a suitable substitute available within a few feet of the bus stop that would be accessible to the bus and the passenger needing boarding assistance.
- Connecting sidewalks: are connecting sidewalks or pathways stable, firm, and slip resistant in the vicinity of the bus stop; are they continuous from the stop to the nearest intersections.
- Are there accessible curb ramps at the intersections with streets, driveways?
- Bus stop shelter: if a shelter is present, does it include a ADA accessible wheelchair bay.
- Amenities: does the bus stop include adequate street light, trash receptacle, bicycle rack, map display case, shade, and benches.

Improving access to fixed route public transit service for bicyclists and pedestrians of all ages and abilities is critical to a successful and utilized transit system.

## 9.6 Implementation Plan Table

A summary of short-term implementation steps is provided in Table 9-2.

**Table 9-2. Short-Term Implementation Plan**

| CATEGORY | Short-Term Implementation Plan | | | | |
|---|---|---|---|---|---|
| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| **Administration** | • Establish arrangement with CCC regarding on-location transit stop on campus for proposed Route 15 service.<br>• Initiate contracting arrangement with vanpool provider to initiate vanpool services in Flagstaff region.<br>• Establish key performance criteria to evaluate service transition and performance over next 20 years. | • Develop program goals and job description for Mobility Manager position to coordinate transportation resources within Flagstaff and also organize Supplemental Mobility services.<br>• Hire Mobility Manager position and restructure responsibilities as needed.<br>• Evaluate ridership and operational characteristics of initial route changes via passenger surveys.<br>• Establish agreements with potential end-of-line facilities that could be used for break or layover facilities for operators. | | • Initiate community process to plan and develop Route 400 service in University Heights and Ponderosa Trails.<br>• Establish permitting and other necessary administrative tasks to construct park-and-ride facilities in Doney Park and Kachina Village. | |
| **Service Operations** | • Relocate or site new bus stops as needed to accommodate for new route alignments (and new route service areas).<br>• Conduct operator training related to new routes and headway management techniques on Route 10 (Crosstown Rapid).<br>• Establish protocol for selected trips on Route 15 to serve east of Lone Tree Road.<br>• Test all service route alternatives.<br>• Develop a bus stop policy. | • Continue monitoring any new services or initiate service changes that have yet to occur. Minor modifications as necessary.<br>• Coordinate with NAU Parking and Transportation services to coordinate transit services on and off campus.<br>• Continue coordination with City of Flagstaff to ensure non-motorized access to bus stops is safe and convenient.<br>• Coordinate with City of Flagstaff to develop "Yield to Bus" ordinance and "Bus May Use Both Lanes" ordinance. | | | • Relocate or site new bus stops as needed to accommodate for mid-term route alignments (and new route service areas).<br>• Finalize downtown terminus locations for commuter services.<br>• Deemphasize Downtown Transfer Center and increase focus for on-street transfers.<br>• Construct East-side Transit Center.<br>• Construct Doney Park and Kachina Village Park-and Ride lots. |
| **Public Information** | • Develop branding and marketing campaign to roll out Mountain Link "Crosstown Rapid" service.<br>• Develop new service maps and website to reflect service changes.<br>• Fully integrate TransLoc vehicle tracking software into current Mountain Line website.<br>• Increase use of social media to provide public information. | • Gather continued feedback on new services.<br>• Communicate any information about future fare changes or fare change policies adopted by NAIPTA. | | • Gather continued feedback on new services. | • Develop branding and marketing campaign to differentiate between "Crosstown Rapid" and "NAU Link" services.<br>• Provide marketing campaign to inform of other major service changes (elimination of Route 4). |
| **Vehicle Procurement and Capital Expenditures** | • Establish procurement plan for future vehicle needs for mid- and long-term plan.<br>• Procure new bus shelters for key locations (transfer points) and flag stops for other locations as needed.<br>• Commence detailed planning and design for new East-side Transit Center; identify preferred location.<br>• Procure site for new East-side Transit Center. | • Enhance on-street transfer facilities (bus shelter enhancements, real-time arrival information).<br>• Begin procurement for new fixed-route transit vehicles for expanded service (mid-term plan) in addition to commuter services.<br>• Construct end-of-line break facilities (comfort station) if needed for routes where necessary.<br>• Continue coordination with City of Flagstaff for improved pedestrian connections to bus stop locations.<br>• Conduct NAU/NAIPTA Transit Coordination Study.<br>• Conduct BRT Master Plan.<br>• Conduct Bus Stop Accessibility Inventory. | | | |

## 9.7 Environmental Justice

### 9.7.1 Overview

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, established environmental justice as a federal government priority. Environmental justice was initially established in Title VI of the 1964 Civil Rights Act. Implementation of the Flagstaff Regional Five-Year and Long-Range Transit Plan recommendations should comply with Executive Order 12898. Guidance provided by the Federal Transit Administration (FTA) establishes the following Guiding Environmental Justice Principles[32]:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making business.
- To prevent the denial of, and reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

A key component of the Environmental Justice process is engaging Environmental Justice populations in meaningful public engagement to address any issues affecting them. Consistent with FTA Environmental Justice Policy Guidance for FTA Grant recipients, the short-, mid-, and long-term service plans were developed with service equity goals in mind. Throughout development of the Plan, stakeholder and public input was solicited from multiple groups and organizations that represent Flagstaff's citizens. Outreach activities included presentations, attendance, information dissemination, and/or information booths.

NAIPTA staff attended, presented or provided information to the following agencies, groups, and organizations:

- Arizona Rural Continuum of Care.
- Bothands, Inc. (affordable housing program).
- Flagstaff Project Connect (addresses poverty and homelessness).
- FMPO Bicycle and Pedestrian Advisory Committee.
- FMPO and Technical Advisory Committee.
- Flagstaff Regional Plan Citizen Advisory Committee.
- NAIPTA Board of Directors.
- NAIPTA, NAU, City of Flagstaff, and FMPO coordination meeting.
- Flagstaff Regional Mobility Coordination meeting.
- NAU Parking Committee.

[32] http://www.fta.dot.gov/documents/FTA_EJ_Circular_7.14-12_FINAL.pdf

- Flagstaff Housing Authority.
- Flagstaff Rotary Club.

NAIPTA staff attended and disseminated information at the following:

- Student Union on the NAU campus.
- Downtown Transit Center on multiple dates.
- Flagstaff Farmers Market.
- Sunnyside Fiesta at Ponderosa Park.

### 9.7.2 Minority and Low-Income Populations Considerations

The US Census Bureau defines a racial and ethnic minority person as:

- Black: a person having origins in any of the black racial groups of Africa.
- American Indian and Alaskan Native: a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition.
- Asian: a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands.
- Native Hawaiian or Other Pacific Islander: a person having origins in any of the original peoples of Hawaii, Guam, Samoa, Tonga, Chamorro, Fiji, or other Pacific Islands.
- Hispanic or Latino (ethnicity): a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.

Low-income population means any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who would be similarly affected by a proposed federal program, policy, or activity. An individual of low-income is defined as a person whose median annual household income is at or below the US Department of Health and Human Services (HHS) poverty guidelines. To determine poverty level, the US Census Bureau relies on the thresholds identified in the HHS poverty guidelines, which vary by family size and composition. 2010 HHS poverty thresholds for a four-person family are set at $22,050.[33]

Minority populations identified within the Title VI Related Statutes include individuals classified as elderly, disabled, and/or female head-of-household. The following Title VI Related Statutes minority population groups are defined as:

- Elderly: an individual 60 years of age or over.
- Disabled: a non-institutionalized civilian that has reported a sensory disability, physical disability, mental disability, self-care disability, go-outside-home disability, or employment disability.
- Female head-of-household: any woman in which no husband is present and is either living alone or not living alone who acts as the primary income provider.

[33] Federal Register [FR] Vol. 73, No. 15

Census Tract (CT) data was reviewed for the Flagstaff region. The following thresholds were used to identify those CTs with high Title VI populations:

- 50% or greater than the total population for the CT or the City of Flagstaff is more than double the percentage of the population within the comparative county (Coconino County).

The analysis compared CT data for the Flagstaff region to the City and County census data. Racial and ethnic characteristics for the study area are presented in Table 9-3.

Table 9-4 displays the elderly, low-income, disabled, and female head-of-household demographics.

### Minority Population

The majority of the population for the Flagstaff region is White (Non-Hispanic), at 76%. This number is comparable to the City of Flagstaff, which is 73% White (Non-Hispanic), but slightly higher than Coconino County (62%). The largest minority group in the study area is Hispanic or Latino of any race, at 17%. The racial and minority populations are comparable to those of the County and the City. There is one CT (CT 3) that has a high percentage of minority populations (52%).

### Elderly Population

The elderly populations displayed in Figure 9-1 are comparable to those of the City and County. There are two CTs with elderly population percentages that are double that of the County (CT 6 and CT 15).

### Table 9-3. Racial and Ethnic Demographics

| Area/Census Tract/Block Group** | Total Population | Population of One Race / Not Hispanic or Latino* | | | | | | | | | | | | Pop. of Two or More Races/ Not Hispanic or Latino* | | Hispanic or Latino*of Any Race | | Total Minority Population | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | White | % | Black or African American | % | American Indian and Alaska Native | % | Asian | % | Native Hawaiian and Other Pacific Islander | % | Other | % | Value | % | Value | % | Value | % |
| Coconino County | 134,421 | 82,967 | 62% | 1,629 | 1% | 36,714 | 27% | 1,846 | 1% | 164 | 0% | 6,990 | 5% | 4,111 | 3% | 18,166 | 14% | 51,454 | 38% |
| City of Flagstaff | 65,870 | 48,348 | 73% | 1,278 | 2% | 7,704 | 12% | 1,227 | 2% | 115 | 0% | 4,823 | 7% | 2,375 | 4% | 12,094 | 18% | 17,522 | 27% |
| | | | | | | | | | | | | | | | | | | | |
| 1 | 3,804 | 3,337 | 88% | 43 | 1% | 161 | 4% | 46 | 1% | 12 | 0% | 74 | 2% | 131 | 3% | 364 | 10% | 467 | 12% |
| 2 | 3,788 | 3,117 | 82% | 52 | 1% | 301 | 8% | 69 | 2% | 2 | 0% | 115 | 3% | 132 | 3% | 415 | 11% | 671 | 18% |
| 3 | 7,175 | 3,435 | 48% | 135 | 2% | 1,708 | 24% | 47 | 1% | 12 | 0% | 1499 | 21% | 339 | 5% | 2,695 | 38% | 3,740 | 52% |
| 4 | 5,373 | 3,614 | 67% | 92 | 2% | 895 | 17% | 68 | 1% | 10 | 0% | 498 | 9% | 196 | 4% | 1,159 | 22% | 1,759 | 33% |
| 5 | 4,396 | 2,803 | 64% | 51 | 1% | 772 | 18% | 26 | 1% | 9 | 0% | 553 | 13% | 182 | 4% | 1,314 | 30% | 1,593 | 36% |
| 6 | 5,461 | 4,552 | 83% | 59 | 1% | 508 | 9% | 90 | 2% | 4 | 0% | 88 | 2% | 160 | 3% | 483 | 9% | 909 | 17% |
| 7 | 3,647 | 2,804 | 77% | 62 | 2% | 402 | 11% | 74 | 2% | 8 | 0% | 199 | 5% | 98 | 3% | 525 | 14% | 843 | 23% |
| 8 | 4,122 | 2,721 | 66% | 183 | 4% | 686 | 17% | 86 | 2% | 10 | 0% | 285 | 7% | 151 | 4% | 834 | 20% | 1,401 | 34% |
| 9 | 6,905 | 5,376 | 78% | 104 | 2% | 778 | 11% | 158 | 2% | 13 | 0% | 258 | 4% | 218 | 3% | 953 | 14% | 1,529 | 22% |
| 10 | 8,156 | 6,368 | 78% | 307 | 4% | 530 | 6% | 313 | 4% | 15 | 0% | 295 | 4% | 328 | 4% | 1,132 | 14% | 1,788 | 22% |
| 11. 01 | 4,797 | 4,199 | 88% | 54 | 1% | 176 | 4% | 101 | 2% | 8 | 0% | 113 | 2% | 146 | 3% | 468 | 10% | 598 | 12% |
| 11. 02 | 6,650 | 4,490 | 68% | 122 | 2% | 802 | 12% | 121 | 2% | 6 | 0% | 874 | 13% | 235 | 4% | 1,735 | 26% | 2,160 | 32% |
| 12 | 2,864 | 2,465 | 86% | 23 | 1% | 117 | 4% | 41 | 1% | 6 | 0% | 133 | 5% | 79 | 3% | 299 | 10% | 399 | 14% |
| 13. 01 | 5,102 | 4,088 | 80% | 15 | 0% | 659 | 13% | 20 | 0% | 2 | 0% | 161 | 3% | 157 | 3% | 494 | 10% | 1,014 | 20% |
| 13. 02 | 5,536 | 4,424 | 80% | 45 | 1% | 676 | 12% | 19 | 0% | 3 | 0% | 211 | 4% | 158 | 3% | 676 | 12% | 1,112 | 20% |
| 15 | 3,186 | 2,830 | 89% | 27 | 1% | 156 | 5% | 21 | 1% | 2 | 0% | 78 | 2% | 72 | 2% | 222 | 7% | 356 | 11% |
| 22 | 6,457 | 5,515 | 85% | 36 | 1% | 323 | 5% | 49 | 1% | 7 | 0% | 372 | 6% | 155 | 2% | 898 | 14% | 942 | 15% |
| **Total Area** | **87,419** | **66,138** | **76%** | **1,410** | **2%** | **9,650** | **11%** | **1,349** | **2%** | **129** | **0%** | **5,806** | **7%** | **2,937** | **3%** | **14,666** | **17%** | **21,281** | **24%** |

Source: US Census Bureau. 2010 Census; * Hispanic or Latino refers to ethnicity and is derived from the total population; 'Hispanic or Latino' is not classified as a separate race;
**Census Tract Boundaries are displayed in Figure 9-1

**Table 9-4. Elderly, Low-Income, Disabled, and Female Head-of-Household Demographics**

| Area/Census Tract (CT) | Age 60 Years and Over | | | Low-Income | | | Female Head-of-Household[34] | | |
|---|---|---|---|---|---|---|---|---|---|
| | Population | Number | % | Population | Number | % | Population | Number | % |
| Coconino County | 134,421 | 11,924 | 9% | 124,135 | 23,048 | 19% | 134,421 | 38,918 | 29% |
| City of Flagstaff | 65,870 | 4,233 | 6% | 56,508 | 10,971 | 19% | 65,870 | 19,154 | 29% |
| 1 | 3,804 | 652 | 17% | 3,804 | 147 | 4% | 3799 | 504 | 13. 3% |
| 2 | 3,788 | 641 | 17% | 3,788 | 323 | 9% | 3733 | 730 | 19. 6% |
| 3 | 7,175 | 629 | 9% | 7,175 | 507 | 7% | 6978 | 1106 | 15. 8% |
| 4 | 5,373 | 715 | 13% | 5,373 | 299 | 6% | 5350 | 734 | 13. 7% |
| 5 | 4,396 | 460 | 10% | 4,396 | 137 | 3% | 4389 | 582 | 13. 3% |
| 6 | 5,461 | 1043 | 19% | 5,461 | 302 | 6% | 5447 | 759 | 13. 9% |
| 7 | 3,647 | 462 | 13% | 3,647 | 288 | 8% | 3639 | 568 | 15. 6% |
| 8 | 4,122 | 220 | 5% | 4,122 | 461 | 11% | 3423 | 632 | 18. 5% |
| 9 | 6,905 | 506 | 7% | 6,905 | 832 | 12% | 6903 | 1072 | 15. 5% |
| 10 | 8,156 | 18 | 0% | 8,156 | 372 | 5% | 1184 | 270 | 22. 8% |
| 11. 01 | 4,797 | 507 | 11% | 4,797 | 842 | 18% | 4786 | 714 | 14. 9% |
| 11. 02 | 6,650 | 614 | 9% | 6,650 | 683 | 10% | 6576 | 1248 | 19. 0% |
| 12 | 2,864 | 381 | 13% | 2,864 | 406 | 14% | 2855 | 571 | 20. 0% |
| 13. 01 | 5,102 | 848 | 17% | 5,102 | 39 | 1% | 5078 | 529 | 10. 4% |
| 13. 02 | 5,536 | 756 | 14% | 5,536 | 556 | 10% | 5522 | 625 | 11. 3% |
| 15 | 3,186 | 979 | 31% | 3,186 | 339 | 11% | 3186 | 457 | 14. 3% |
| 22 | 6,457 | 951 | 15% | 6,457 | 396 | 6% | 6453 | 846 | 13. 1% |
| **Total Area** | **87,419** | **6,326** | **7%** | **87,419** | **9,355** | **11%** | **79,301** | **11,947** | **15%** |

Source: US Census Bureau. Census 2000 Summary File 3 (SF-3)

Note: Data on disabled populations was not available.

## Limited English Proficiency (LEP)

Executive Order 13166, *Improving Access to Services for Persons with Limited English Proficiency*, requires that all agencies ensure that federally supported programs and activities are meaningfully accessible to LEP individuals. Data from the US Census Bureau, Census 2010 database, was used to determine the "Ability to Speak English" for the population of individuals' age five years and over. For the purposes of the social impact analysis on LEP populations, implementing LEP services are likely to be required when the LEP population is either: (1) 20% or greater than the total population for the block group or the City of Flagstaff; or (2) is more than double the percentage of the LEP

[34]Female Head-of-Household population is comprised of individuals in '1-person' households, '2-or-more-person' households, and 'non-family' households in which no husband is present and are either living alone or not living alone.

population within the comparative county. Figure 9-1 displays the census data for LEP populations within the Flagstaff region and the data is compared to the City and County census data.

The LEP for the CTs in the Flagstaff region are comparable to both the City and County, with the exception of CT 2 and CT 3. The LEP percentages are double and triple that of the County LEP percentage.

Each of these CTs are displayed on the following map, Figure 9-1

**Table 9-5. Limited English Proficiency (LEP) Population Demographics**

| Area/Census Tract (CT) | Total Population Five Years and Over | Total Population That Speaks English "Not Well" or "Not at All" | LEP Percentage (%) |
|---|---|---|---|
| **Coconino County** | 122,840 | 4,515 | 4% |
| **City of Flagstaff** | 60,340 | 1,934 | 3% |
| | | | |
| 1 | 3,385 | 34 | 1% |
| 2 | 3,600 | 277 | 8% |
| 3 | 5,987 | 859 | 14% |
| 4 | 4,765 | 85 | 2% |
| 5 | 3,902 | 145 | 4% |
| 6 | 5,389 | 11 | 0% |
| 7 | 3,401 | 5 | 0% |
| 8 | 3,898 | 26 | 1% |
| 9 | 6,495 | 110 | 2% |
| 10 | 7,411 | 233 | 3% |
| 11. 01 | 4,753 | 56 | 1% |
| 11. 02 | 6,454 | 181 | 3% |
| 12 | 2,414 | 13 | 1% |
| 13. 01 | 5,685 | 17 | 0% |
| 13. 02 | 5,325 | 115 | 2% |
| 15 | 3,263 | 39 | 1% |
| 22 | 6,174 | 74 | 1% |
| **Total Area** | **82,301** | **2,280** | **3%** |

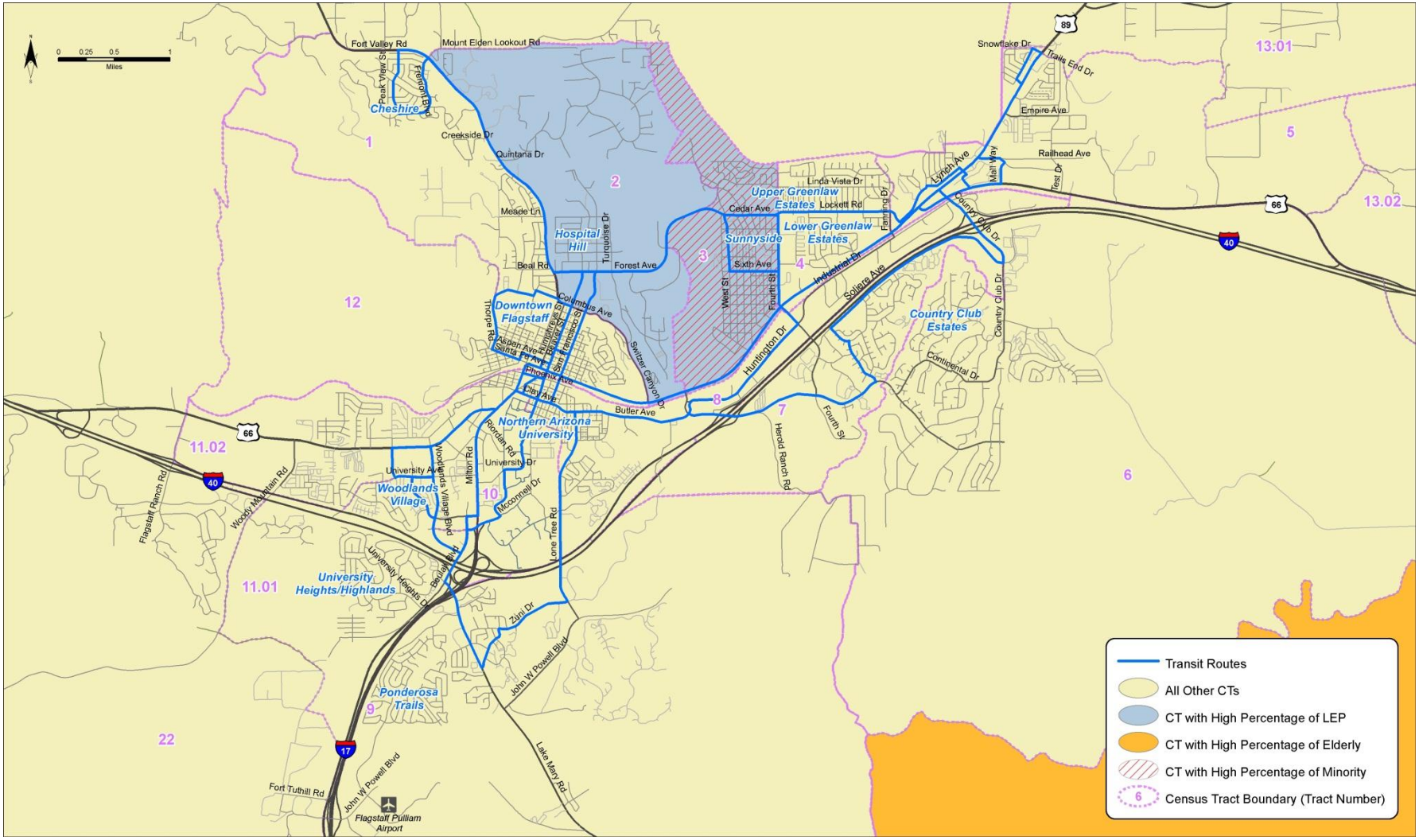
### 9.7.3 Summary

Table 9-6 summarizes findings of the analysis of census tracts to identify high percentage of limited English proficiency, elderly, and minority populations. Impacts to these populations, as recommended in the plan, are identified. As service plans are implemented, impacts to these populations will be continually evaluated.

### Table 9-6. Limited English Proficiency Population Demographics

| Finding | Impact on Transit Plan Recommendations |
|---|---|
| CT 3 has a high percentage of minority populations (52%) and LEP populations (14%, which is more than triple that of the County). | CT 3 is the Sunnyside and Fourth Street corridor. The service plans identify increased transit service in this area. The service plan recommendations are not anticipated to have a negative impact on LEP, elderly, and minority populations. |
| CTs 6 and 15 both had high elderly populations compared to the County levels (19% and 31% respectively). | CT 6 includes Country Club Estates. Transit service has not previously been provided to areas within CT 6. Similarly, CT 15 is located to the south and west of service areas.<br>Short-, mid-, and long-term service plans do not include significant changes in transit service to areas within CT 6 and 15.<br>The service plan recommendations are not anticipated to have a negative impact on LEP, elderly, and minority populations. |
| CT 2 also had a high percentage of LEP (8%), double that of the County. | CT 2 includes areas north of downtown Flagstaff. Transit service in CT 2 is recommended to be equivalent to or improved as compared to that currently provided.<br>The service plan recommendations are not anticipated to have a negative impact on LEP, elderly, and minority populations. |

**Figure 9-1. Census Tracts with High Percentage of Limited English Proficiency, Elderly, and Minority Populations**




Source: US Census Bureau, 2010

# APPENDIX

## References

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Mobility Manager Job Descriptions. National Resource Center for Human Service Transportation Coordination. http://web1.ctaa.org/webmodules/webarticles/anmviewer.asp?a=372

## Abbreviations and Acronyms

| | |
|---|---|
| **ADOT** | Arizona Department of Transportation |
| **BRT** | Bus Rapid Transit |
| **BNSF** | Burlington Northern Santa Fe |
| **CAT** | Cottonwood Area Transit |
| **CCC** | Coconino Community College |
| **FMC** | Flagstaff Medical Center |
| **FMPO** | Flagstaff Metropolitan Planning Organization |
| **FTA** | Federal Transit Administration |
| **I-17** | Interstate 17 |
| **I-40** | Interstate 40 |
| **MAP-21** | Moving Ahead for Progress in the 21st Century |
| **NAIPTA** | Northern Arizona Intergovernmental Public Transportation Authority |
| **NAU** | Northern Arizona University |
| **RPI** | Rural Policy Institute at Northern Arizona University |
| **US 89** | United States Route 89 |
| **USDOT** | United States Department of Transportation |

## Public Review of Draft Plan Presentations

### Table A-1. Draft Plan Presentations

| Date | Agency, Organization, or Committee | Comments |
|---|---|---|
| 6-Feb | Flagstaff Traffic Commission | |
| 6-Feb | Human Services Providers | ▪ Can service be extended to the shelter and food center?<br>▪ Really appreciate the efforts to include this corridor and population. |
| 7-Feb | FMPO Bicycle Advisory Committee | ▪ There is concern about a combined bus and bicycle lane. |
| 7-Feb | Flagstaff Metropolitan Planning Organization (FMPO) TAC | ▪ Plan should be adopted by City Council. |
| 7-Feb | NAIPTA Technical Advisory Committee (TAC) | ▪ Emphasis on transition to new routes. |
| 12-Feb | NAIPTA, NAU, City of Flagstaff, and FMPO Coordination | |
| 13-Feb | City of Flagstaff Planning and Zoning | |
| 13-Feb | City of Flagstaff Sustainability Commission | ▪ Provides benefits to the community. |
| 14-Feb | Board of Realtors | ▪ Transit needs to pay for itself.<br>▪ Don't subsidize transit for those who have other alternatives.<br>▪ Focus services in-town (not outlying areas). |
| 14-Feb | Bothands Public Policy Committee | ▪ Appreciate service expansion to Sunnyside. |
| 14-Feb | City of Flagstaff Pedestrian Advisory Committee | ▪ Strong approach. Liked the linkage with multimodal elements. |
| 15-Feb | Coconino County Public Works | ▪ Please add that grant opportunities may be available to fund vanpools. |
| 19-Feb | Flagstaff Regional Plan Community Advisory Committee | ▪ Strong plan. |
| 19-Feb | Sunrise Lions | ▪ Would like demonstrations as to how to use the bus. |
| 20-Feb | NAIPTA Board of Directors | ▪ The plan is headed in a sound direction. |
| 22-Feb | NAU Transportation Action Team | ▪ Will the JacksCard get students across town? |
| 26-Feb | Chamber of Commerce | ▪ Consider conducting a study on the economic impacts of Route 10 in downtown Flagstaff. |
| 26-Feb | City of Flagstaff City Council | ▪ Consider submitting the Plan for City Council to consider adopting as a Master Plan. |
| 26-Feb | NAIPTA CRC and TAC | ▪ Consider changing bus routes and schedules during class breaks and summer when students are away.<br>▪ Shelters should be considered at all transfer points. |

| Date | Agency, Organization, or Committee | Comments |
|---|---|---|
| | | ▪ Service should be considered to Woody Mountain Road. |
| 27-Feb | Editorial Board | ▪ New plan has "backbone." |
| 27-Feb | Flagstaff Housing Authority | ▪ Please consider later service on the weekends (including Friday).<br>▪ A robust public outreach campaign will be required as part of the transition to the new service routes.<br>▪ Consider electric charging stations at park and ride lots and transfer centers. |
| 27-Feb | Friends of Flagstaff's Future | ▪ Supportive, especially with capital projects. |
| 25-Mar | Tourism Commission | ▪ Like the plan. |
| 26-Mar | Disability Awareness | |
| 9-Apr | Flagstaff School District Board | ▪ Like the spine; stronger coordination is needed for student riders. |
| 11-Apr | Northern Arizona Human Resource Association | |
| 15-Apr | Arizona Department of Transportation | ▪ Concern with "Yield to Bus."<br>▪ Right of Way on Milton is not contiguous.<br>▪ Ultimately, will need 3 travel lanes and a fourth for transit use. |
| 18-Apr | ECoNA Advisory Board | |
| 25-Apr | Human Relations Meeting | ▪ Questions about EcoPasses. |

## Service Plan Summary Tables

**Short Term Service Plan**

| | | WEEKDAY (W/D) | | | | | | | | | | | | SATURDAY | | | | | | | | | | SUNDAY | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | RND TRIP TIME w/o recovery | | RND TRIP TIME w/ recovery | | FREQUENCY | | VEHICLES | | HRS/WEEKDAY | | | W/D REV HRS | RND TRIP TIME w/o recovery | | RND TRIP TIME w/ recovery | | FREQUENCY | | VEHICLES | | HRS/SAT DAY | | SAT REV HRS | RND TRIP TIME w/o recovery | | RND TRIP TIME w/recovery | | FREQUENCY | | VEHICLES | | HRS/SUN DAY | | SUN REV HRS |
| New Route | Description | Peak | Base | Peak | Base | Peak | Base | Peak | Base | Peak | Base | Service Span | | Peak | Base | Peak | Base | Peak | Base | Peak | Base | Peak | Base | | Peak | Base | Peak | Base | Peak | Base | Peak | Base | Peak | Base | |
| 2 | Southside/Butler/Sunnyside/Lockett/Mall | 52 | 52 | 60 | 59 | 30 | 60 | 2 | 1 | 2.0 | 4.0 | 16 | 28 | 52 | 52 | 60 | 59 | | 60 | 0 | 1 | | 13 | 13 | 52 | 52 | 60 | 59 | | 60 | 0 | 1 | | 13 | 13 |
| 4A | NAU Circulator (Clockwise) | 25 | 25 | 29 | 29 | 40 | 40 | 1 | 1 | 1 | 16 | 16 | 16 | 25 | 25 | 29 | 29 | | 30 | | 1 | | 13 | 13 | 25 | 25 | 29 | 29 | | 30 | | 1 | | 13 | 13 |
| 4B | NAU Circulator (Counterclockwise) | 32 | 32 | 36 | 36 | 40 | 40 | 1 | 1 | 1.0 | 16.0 | 16 | 16 | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Cheshire/FMC/Downtown/TC | 32 | 32 | 36 | 36 | 40 | 40 | 1 | 1 | 1.0 | 8.0 | 8 | 8 | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Woodlands Village/NAU/Downtown/FMC/Sunnyside/66/Mall | 84 | 84 | 89 | 89 | 15 | 20 | 6 | 5 | 6 | 10 | 16 | 86 | 84 | 84 | 89 | 89 | | 30 | 0 | 3 | | 13 | 39 | 84 | 84 | 89 | 89 | | 30 | 0 | 3 | | 13 | 39 |
| 15* | NAU-CCC Connector* (Contingent on Available Funds) | 33 | 33 | 38 | 37 | 20 | 40 | 2 | 1 | 2.0 | 0.0 | 12 | 24 | | | | | | | | | | | | | | | | | | | | | | |
| 100 | Thorpe Park/Switzer Cyn/Butler/4thStreet | 55 | 55 | 60 | 60 | 60 | 60 | 1 | 1 | 1 | 13 | 13 | 13 | | | | | | | | | | | | | | | | | | | | | | |
| 200 | Woodlands Village/TC/West 66/Sunnyside | 53 | 53 | 60 | 60 | 30 | 60 | 2 | 1 | 2.0 | 10.0 | 16 | 22 | 53 | 53 | 60 | 60 | | 60 | 0 | 1 | | 13 | 13 | 53 | 53 | 60 | 60 | | 60 | 0 | 1 | | 13 | 13 |
| 300 | Sunnyside/Soliere/Chrismas Tree/Mall | 54 | 54 | 59 | 59 | 30 | 60 | 2 | 1 | 2.0 | 10.0 | 16 | 22 | 54 | 54 | 60 | 60 | | 60 | 0 | 1 | | 13 | 13 | 54 | 54 | 60 | 60 | | 60 | 0 | 1 | | 13 | 13 |
| 10P (Peak) | Woodlands Village/NAU/Downtown | 20 | 20 | 23 | 23 | 30 | | 1 | | 1.0 | | | 6 | | | | | | | | | | | | | | | | | | | | | | |

| | |
|---|---|
| 17 | Peak Bus Requirement* |
| 12 | Base Bus Requirement* |

*does not include Route 15

**Medium-Term Service Plan**

| | | WEEKDAY (W/D) | | | | | | | | | | | | SATURDAY | | | | | | | | | | SUNDAY | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | RND TRIP TIME w/o recovery | | RND TRIP TIME w/ recovery | | FREQUENCY | | VEHICLES | | HRS/WEEKDAY | | | W/D REV HRS | RND TRIP TIME w/o recovery | | RND TRIP TIME w/ recovery | | FREQUENCY | | VEHICLES | | HRS/SAT DAY | | SAT REV HRS | RND TRIP TIME w/o recovery | | RND TRIP TIME w/recovery | | FREQUENCY | | VEHICLES | | HRS/SUN DAY | | SUN REV HRS |
| New Route | Description | Peak | Base | Peak | Base | Peak | Base | Peak | Base | Peak | Base | Service Span | | Peak | Base | Peak | Base | Peak | Base | Peak | Base | Peak | Base | | Peak | Base | Peak | Base | Peak | Base | Peak | Base | Peak | Base | |
| 1 | Woodlands Village/Milton/Downtown/FMC/Sunnyside/66/Mall | 70 | 68 | 82 | 79 | 15 | 20 | 6 | 4 | 12.0 | 4.0 | 16 | 88 | 70 | 68 | 82 | 79 | | 30 | 0 | 3 | | 15 | 45 | 70 | 68 | 82 | 79 | | 30 | 0 | 3 | | 15 | 45 |
| 10 | Woodlands Village/NAU/Transit Center | 26 | 25 | 30 | 29 | 10 | 15 | 4 | 2 | 12 | 4 | 16 | 56 | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Bow and Arrow/NAU/Butler/Sunnyside/Lockett/Mall | 71 | 68 | 83 | 80 | 30 | 30 | 3 | 3 | 12.0 | 4.0 | 16 | 48 | 71 | 68 | 83 | 68 | | 30 | 0 | 3 | | 15 | 45 | 71 | 68 | 83 | 80 | | 30 | 0 | 3 | | 15 | 45 |
| 12 | TC/Franklin/LoneTree/CCC | 23 | 23 | 27 | 26 | 15 | 30 | 2 | 1 | 12.0 | 4.0 | 16 | 28 | | | | | | | | | | | | | | | | | | | | | | |
| 100 | Thorpe Park/Switzer Cyn/Butler/4thStreet | 55 | 55 | 60 | 60 | 60 | 60 | 1 | 1 | 0.0 | 15 | 15 | 15 | 55 | 55 | 60 | 60 | | 60 | 0 | 1 | | 15 | 15 | 55 | 55 | 60 | 60 | | 60 | 0 | 1 | | 15 | 15 |
| 200 | Woodlands Village/TC/West 66/Sunnyside | 53 | 53 | 60 | 60 | 30 | 60 | 2 | 1 | 12.0 | 4.0 | 16 | 28 | 53 | 53 | 60 | 60 | | 60 | 0 | 1 | | 15 | 15 | 53 | 53 | 53 | 53 | | 60 | 0 | 1 | | 15 | 15 |
| 300 | Sunnyside/Soliere/Chrismas Tree/Mall | 54 | 54 | 59 | 59 | 30 | 60 | 2 | 1 | 12 | 4 | 16 | 28 | 54 | 54 | 59 | 59 | | 60 | 0 | 1 | | 15 | 15 | 54 | 54 | 59 | 59 | | 60 | 0 | 1 | | 15 | 15 |
| 400 | U-Heights/Ponderosa Trails Service | 39 | 38 | 46 | 44 | 60 | 60 | 1 | 1 | 0.0 | 15.0 | 15 | 15 | 39 | 38 | 39 | 38 | | 60 | 0 | 1 | | 15 | 15 | 39 | 38 | 39 | 38 | | 60 | 0 | 1 | | 15 | 15 |
| 500 | Cheshire/FMC/Downtown/TC | 33 | 32 | 38 | 37 | 40 | 40 | 1 | 1 | 0.0 | 15.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | | |
| 20X | Doney Park Express | 33 | 32 | 39 | 37 | 60 | 60 | 1 | 0.0 | 5.0 | 0.0 | 5 | 5 | | | | | | | | | | | | | | | | | | | | | | |
| 30X | Kachina/Mountainaire Express | 34 | 32 | 39 | 38 | 60 | 60 | 1 | 0.0 | 5.0 | 0.0 | 5 | 5 | | | | | | | | | | | | | | | | | | | | | | |

| | |
|---|---|
| 24 | Peak Bus Requirement |
| 15 | Base Bus Requirement |

**Long-Term Service Plan**

| | | WEEKDAY (W/D) | | | | | | | | | | | | SATURDAY | | | | | | | | | | SUNDAY | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | RND TRIP TIME w/o recovery | | RND TRIP TIME w/ recovery | | FREQUENCY | | VEHICLES | | HRS/WEEKDAY | | | W/D REV HRS | RND TRIP TIME w/o recovery | | RND TRIP TIME w/ recovery | | FREQUENCY | | VEHICLES | | HRS/SAT DAY | | SAT REV HRS | RND TRIP TIME w/o recovery | | RND TRIP TIME w/recovery | | FREQUENCY | | VEHICLES | | HRS/SUN DAY | | SUN REV HRS |
| New Route | Description | Peak | Base | Peak | Base | Peak | Base | Peak | Base | Peak | Base | Service Span | | Peak | Base | Peak | Base | Peak | Base | Peak | Base | Peak | Base | | Peak | Base | Peak | Base | Peak | Base | Peak | Base | Peak | Base | |
| 1 | Milton/Downtown/FMC/Sunnyside/66/Mall* | 70 | 68 | 82 | 80 | 15 | 20 | 6 | 4 | 12.0 | 4.0 | 16 | 88 | 70 | 68 | 82 | 80 | | 30 | | 3 | | 15 | 45 | 70 | 68 | 82 | 80 | | 30 | | 3 | | 15 | 45 |
| 1 (Airport Trips) | Airport/Milton* | 19 | 18 | 22 | 21 | 30 | 30 | 1 | 0.0 | 12.0 | 4.0 | 16 | 12 | 19 | 18 | 22 | 21 | | 60 | | 1 | | 15 | 15 | 19 | 18 | 22 | 21 | | 60 | | 1 | | 15 | 15 |
| 10 | Woodlands Village/NAU/Transit Center | 26 | 25 | 30 | 30 | 10 | 15 | 4 | 2 | 12 | 4 | 16 | 56 | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Bow and Arrow/NAU/Butler/Sunnyside/Lockett/Mall | 71 | 68 | 84 | 80 | 30 | 30 | 3 | 3 | 12.0 | 4.0 | 16 | 48 | 71 | 68 | 84 | 80 | | 30 | | 3 | | 15 | 45 | 71 | 68 | 84 | 80 | | 30 | | 3 | | 15 | 45 |
| 12 | TC/Franklin/LoneTree/CCC | 23 | 23 | 27 | 27 | 15 | 30 | 2 | 1 | 12.0 | 4.0 | 16 | 28 | | | | | | | | | | | | | | | | | | | | | | |
| 100 | Thorpe Park/Switzer Cyn/Butler/4thStreet | 55 | 55 | 60 | 60 | 60 | 60 | 1 | 1 | 12.0 | 4 | 16 | 16 | 55 | 55 | 60 | 60 | | 60 | | 1 | | 15 | 30 | 55 | 55 | 60 | 60 | | 60 | | 1 | | 15 | 15 |
| 200 | Woodlands Village/TC/West 66/Sunnyside | 53 | 53 | 60 | 60 | 30 | 60 | 2 | 1 | 12.0 | 4.0 | 16 | 28 | 53 | 53 | 60 | 60 | | 60 | | 1 | | 15 | 30 | 53 | 53 | 60 | 60 | | 60 | | 1 | | 15 | 15 |
| 300 | Sunnyside/Soliere/Chrismas Tree/Mall | 54 | 54 | 59 | 59 | 30 | 60 | 2 | 1 | 12 | 4 | 16 | 28 | 54 | 54 | 59 | 59 | | 60 | | 1 | | 15 | 30 | 54 | 54 | 59 | 59 | | 60 | | 1 | | 15 | 15 |
| 400 | U-Heights/Ponderosa Trails Service | 39 | 38 | 46 | 44 | 60 | 60 | 1 | 1 | 0.0 | 15.0 | 15 | 15 | 39 | 38 | 46 | 44 | | 60 | | 1 | | 15 | 15 | 39 | 38 | 46 | 44 | | 60 | | 1 | | 15 | 15 |
| 500 | Cheshire/FMC/Downtown/TC | 32 | 32 | 38 | 37 | 40 | 40 | 1 | 1 | 0.0 | 15.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | | |
| 20X | Doney Park Express | 33 | 32 | 39 | 38 | 60 | 60 | 1 | | 5.0 | 0.0 | 5 | 5 | | | | | | | | | | | | | | | | | | | | | | |
| 30X | Kachina/Mountainaire Express | 33 | 32 | 39 | 38 | 60 | 60 | 1 | 0.0 | 5.0 | 0.0 | 5 | 5 | | | | | | | | | | | | | | | | | | | | | | |

| | |
|---|---|
| 25 | Peak Bus Requirement |
| 15 | Base Bus Requirement |

*Note: Route 1 and 1 (Airport Trips) compose the same route but are shown separately from a resource perspective. Trips to the airport operate at 30 minute headways whereas trips for the remainder of the route operate at 15/20 minute headways.

**Short Term Service Plan - Hours Summary**

| Route Number | | Weekday Rev. Hours | Saturday Rev. Hours | Sunday Rev. Hours | *Total Calc. Rev. Hours* | *Estimated Service Miles* |
|---|---|---|---|---|---|---|
| 10 | Woodlands Village/NAU/Downtown/FMC/Sunnyside/66/Mall | 22,102 | 2,067 | 2,067 | *26,236* | *319,373* |
| 2 | Southside/Butler/Sunnyside/Lockett/Mall | 7,196 | 689 | 689 | *8,574* | *118,321* |
| 5 | Cheshire/FMC/Downtown/TC | 2,056 | 0 | 0 | *2,056* | *25,906* |
| 4A | NAU Circulator (Clockwise) | 4,112 | 689 | 689 | *5,490* | *120,117* |
| 4B | NAU Circulator (Counterclockwise) | 4,112 | 0 | 0 | *4,112* | *83,021* |
| 100 | Thorpe Park/Switzer Cyn/Butler/4thStreet | 3,341 | 0 | 0 | *3,341* | *41,094* |
| 200 | Woodlands Village/TC/66/Sunnyside | 5,654 | 689 | 689 | *7,032* | *91,416* |
| 300 | Sunnyside/Soliere/Country Club/Chrismas Tree/Mall | 5,654 | 689 | 689 | *7,032* | *95,776* |
| 15* | NAU-CCC Connector* (Contingent on Available Funds) | 3,840 | 0 | 0 | *3,840* | *65,874* |
| 10P | 10 (peak campus) | *960* | | | *960* | *28,800* |
| | **Total** | **59,027** | **4,823** | **4,823** | | |
| | | | | **Estimated Annual Service** | **68,673** | **989,698** |
| | | | | **Service hours w/o Route 15** | **64,833** | |

**Medium-Term Service Plan - Hours Summary**

| Route Number | | Weekday Rev. Hours | Saturday Rev. Hours | Sunday Rev. Hours | *Total Calc. Rev. Hours* | *Estimated Service Miles* |
|---|---|---|---|---|---|---|
| 1 | Woodlands Village/Milton/Downtown/FMC/Sunnyside/66/Mall | 22,616 | 2,385 | 2,385 | *27,386* | *334,800* |
| 10 | Woodlands Village/NAU/Transit Center | 8,960 | 0 | 0 | *8,960* | *82,227* |
| 11 | Bow and Arrow/NAU/Butler/Sunnyside/Lockett/Mall | 12,336 | 2,385 | 2,385 | *17,106* | *207,097* |
| 500 | Cheshire/FMC/Downtown/TC | 3,855 | 0 | 0 | *3,855* | *48,573* |
| 12 | TC/Franklin/LoneTree/CCC | 4,480 | 0 | 0 | *4,480* | *53,760* |
| 100 | Thorpe Park/Switzer Cyn/Butler/4thStreet | 3,855 | 795 | 795 | *5,445* | *66,974* |
| 200 | Woodlands Village/TC/66/Sunnyside | 7,196 | 795 | 795 | *8,786* | *91,374* |
| 300 | Sunnyside/Soliere/Country Club/Chrismas Tree/Mall | 7,196 | 795 | 795 | *8,786* | *119,665* |
| 400 | U-Heights/Ponderosa Trails Service | 3,855 | 795 | 795 | *5,445* | *54,450* |
| 20X | Doney Park Express | 1,285 | 0 | 0 | *1,285* | *20,560* |
| 30X | Kachina/Mountainaire Express | 1,285 | 0 | 0 | *1,285* | *20,817* |
| | **Total** | **76,919** | **7,950** | **7,950** | | |
| | | | | **Estimated Annual Service** | **92,819** | **1,100,297** |
| | | | | **Supplemental Services** | **4,800** | |
| | | | | **Total Service Hours** | **97,619** | |

**Long-Term Service Plan - Hours Summary**

| Route Number | | Weekday Rev. Hours | Saturday Rev. Hours | Sunday Rev. Hours | *Total Calc. Rev. Hours* | *Estimated Service Miles* |
|---|---|---|---|---|---|---|
| 1 | Airport/Milton/Downtown/FMC/Sunnyside/66/Mall | 25,700 | 3,180 | 3,180 | *32,060* | *387,796* |
| 10 | Woodlands Village/NAU/Transit Center | 8,960 | 0 | 0 | *8,960* | *82,227* |
| 11 | Bow and Arrow/NAU/Butler/Sunnyside/Lockett/Mall | 12,336 | 2,385 | 2,385 | *17,106* | *207,097* |
| 500 | Cheshire/FMC/Downtown/TC | 3,855 | 0 | 0 | *3,855* | *48,573* |
| 12 | TC/Franklin/LoneTree/CCC | 4,480 | 0 | 0 | *4,480* | *53,760* |
| 100 | Thorpe Park/Switzer Cyn/Butler/4thStreet | 4,112 | 795 | 795 | *5,702* | *70,135* |
| 200 | Woodlands Village/TC/66/Sunnyside | 7,196 | 795 | 795 | *8,786* | *91,374* |
| 300 | Sunnyside/Soliere/Country Club/Chrismas Tree/Mall | 7,196 | 795 | 795 | *8,786* | *119,665* |
| 400 | U-Heights/Ponderosa Trails Service | 3,855 | 795 | 795 | *5,445* | *54,450* |
| 20X | Doney Park Express | 1,285 | 0 | 0 | *1,285* | *20,560* |
| 30X | Kachina/Mountainaire Express | 1,285 | 0 | 0 | *1,285* | *20,817* |
| | **Total** | **80,260** | **8,745** | **8,745** | | |
| | | | | **Estimated Annual Service** | **97,750** | **1,156,454** |
| | | | | **Supplemental Services** | **4,800** | |
| | | | | **Total Service Hours** | **102,550** | |

Note: Route 1 and Route 1 Airport Trips are combined in the Long-Term Service Plan.

HAVE A NICE DAY