

# Statewide Strategic Transit Assessment Study

Stakeholder Meeting

April 12, 2019

# Overview

- Intercity update
- Potential local transit services
- Potential commuter routes
- Peer analysis
- Technology
- Next steps

# Results of Needs Analysis

- Many towns showed up as having moderate to high density in population and employment and/or high transit propensity, but no bus service

- |                       |                   |
|-----------------------|-------------------|
| ■ Conway              | ■ Merrimack       |
| ■ Plymouth            | ■ Raymond         |
| ■ Pembroke/Allenstown | ■ Hampton         |
| ■ Boscawen            | ■ Exeter          |
| ■ Milford             | ■ Laconia         |
| ■ Hudson              | ■ Franklin/Tilton |

# Potential Local Services

- Conway
- Plymouth
- Suncook-Concord
- Milford
- Exeter
- Laconia
- Franklin/Tilton

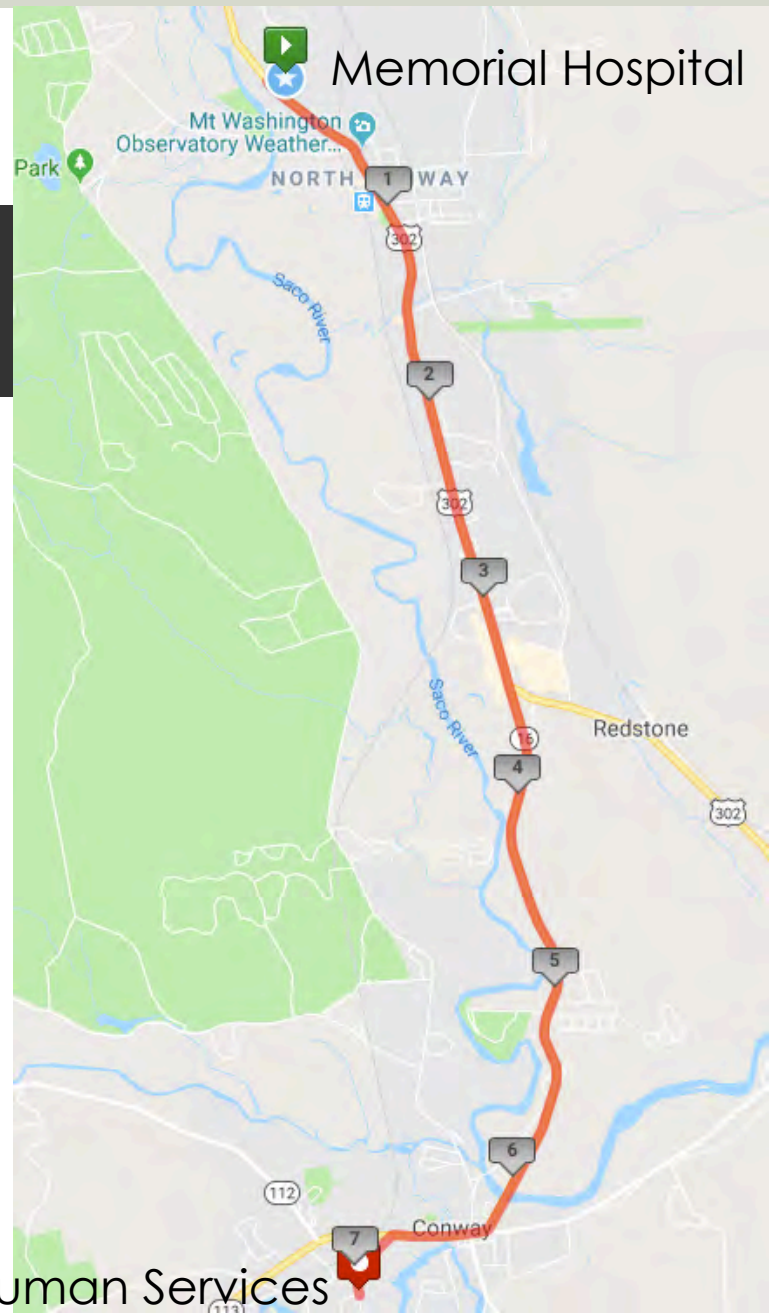
# Assumptions

- For costing purposes, assumed a constant \$75 per vehicle revenue hour for all local services
  - No specific operator assumed
- Made no assumptions about fare levels or revenue
- Most services could be operated as route deviation service with a 1/4-mile buffer; otherwise would require ADA complementary paratransit

# Conway Service

- Seasonal shuttle operating on White Mountain Highway (US 302) and NH 16 between Memorial Hospital and Health & Human Services
  - Two peak buses running at 30-minute headway
  - One bus midday and evening at 60-minute headway
  - Operate from 6:00 a.m. to 10:00 p.m. daily
  - Memorial Day through Labor Day (100 days)
  - Estimate of annual gross cost: \$150,000

# Conway Shuttle



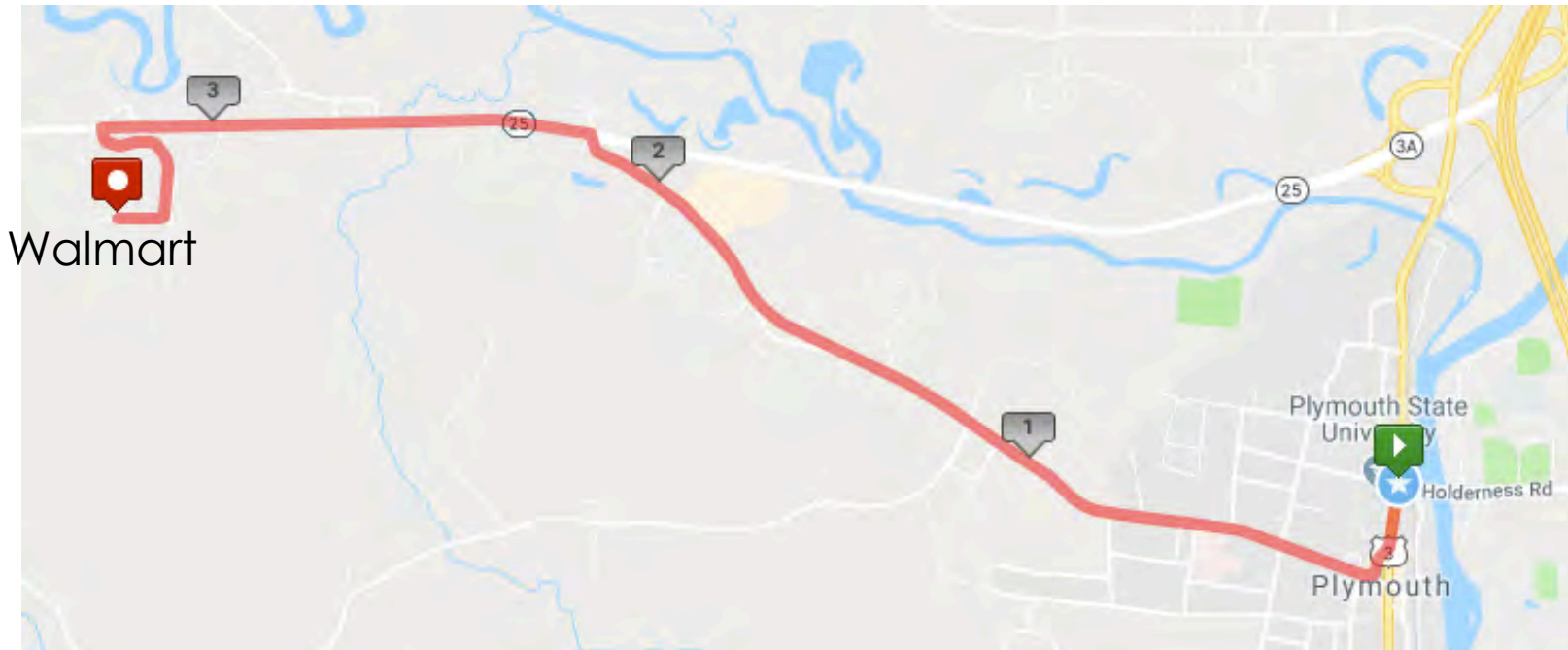
Health & Human Services

# Plymouth Service

- Shuttle connecting retail and employment on NH 25 with PSU and residential development in town center via Highland Street (in partnership with PSU)
  - Western terminus: Walmart
  - Eastern terminus: Town Common/PSU
  - One bus operating at 40-minute headway
  - Operate 6:00 a.m. to 7:00 p.m. Mon-Fri
  - Estimate of annual gross cost: \$250,000



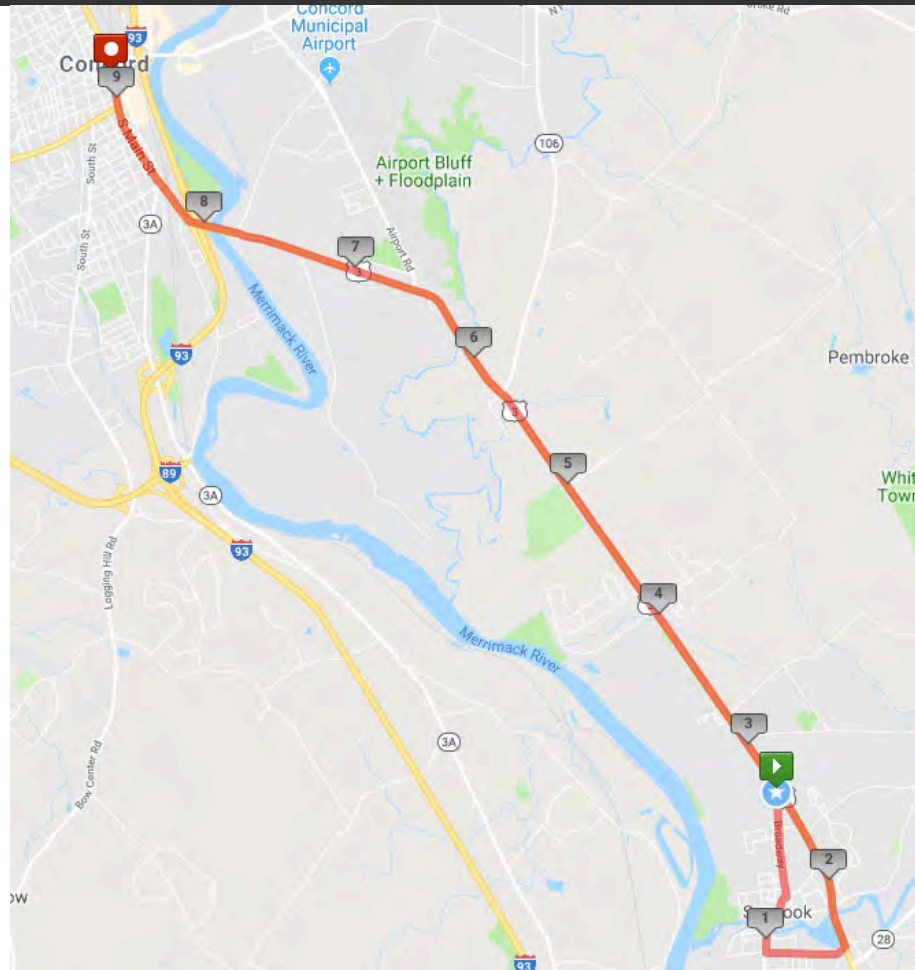
# Plymouth Shuttle



# Suncook Service

- Local route connection to Concord (Eagle Square) via US 3
  - One bus at 60-minute headway
  - Operate 6:00 a.m. to 7:00 p.m. Mon-Fri
  - Estimate of annual gross cost: \$250,000

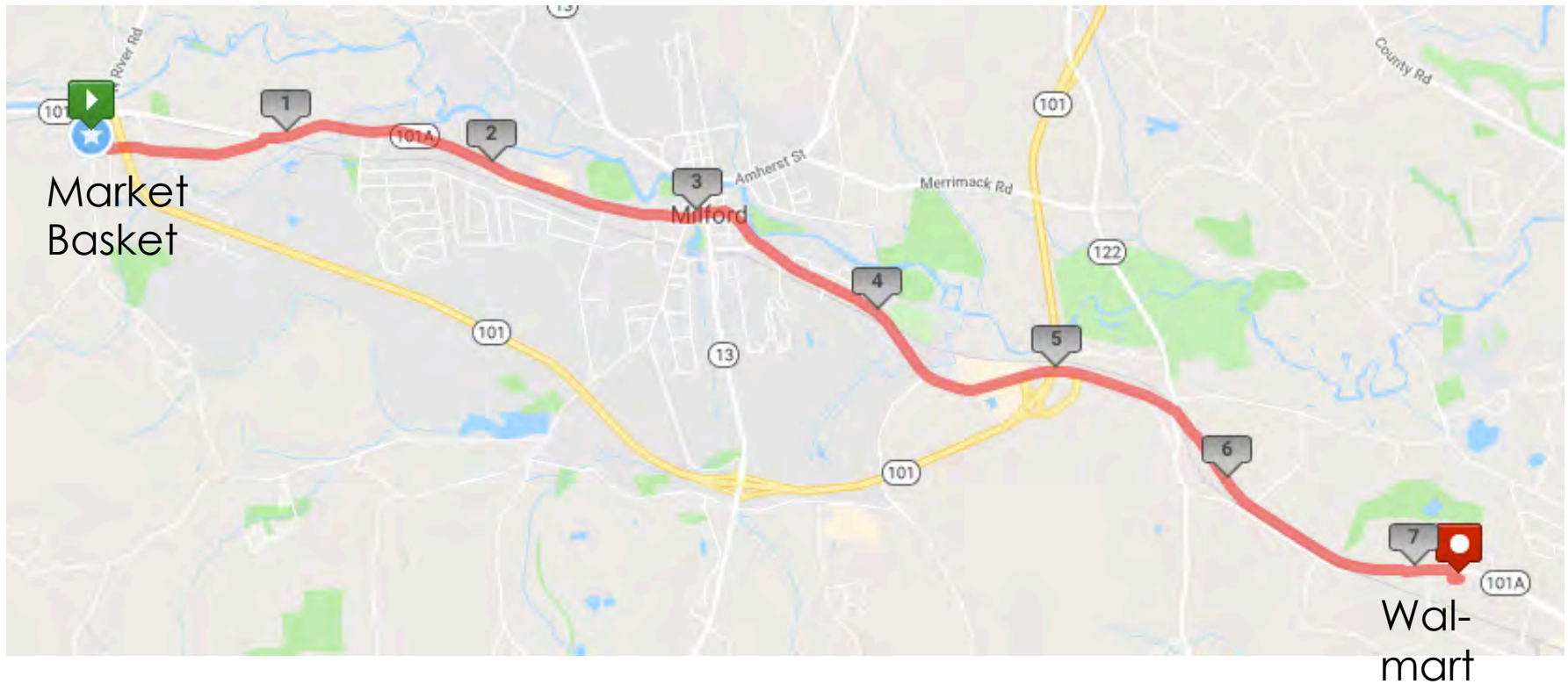
# Suncook – Concord Shuttle



# Milford Service

- Local shuttle operating between Market Basket and Walmart in Amherst (to connect to NTS)
  - One bus operating at 60-minute headway
  - Runs Tuesdays, Fridays and Saturdays from 9:00 a.m. to 6:00 p.m. to meet up with NTS Route 10/10A
  - Estimate of annual gross cost: \$105,000
  - Would likely need to run as a fixed route with complementary paratransit service (possibly available with existing SVTC resources)

# Milford Shuttle

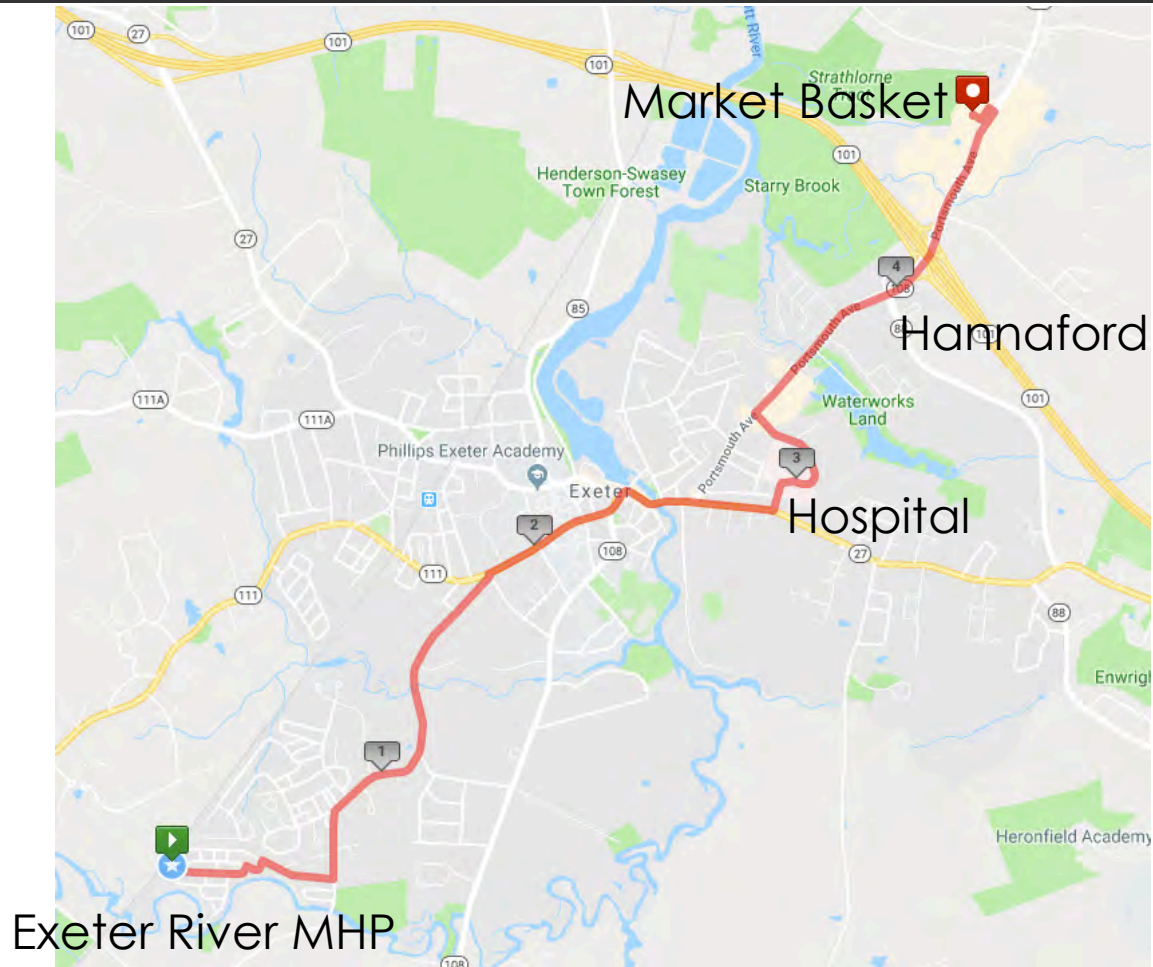


# Exeter Concepts

- Possible substitute for current COAST deviated route Monday, Wednesday, Thursday and Saturday (connects to Stratham and Newmarket)
  - Shuttle route from Robinhood Drive through town and hospital to Hannaford and Market Basket in Stratham
  - One bus at 60-minute headway
  - Operate 6:00 a.m. to 7:00 p.m. Mon-Fri
  - Estimate of annual gross cost: \$250,000



# Exeter Shuttle

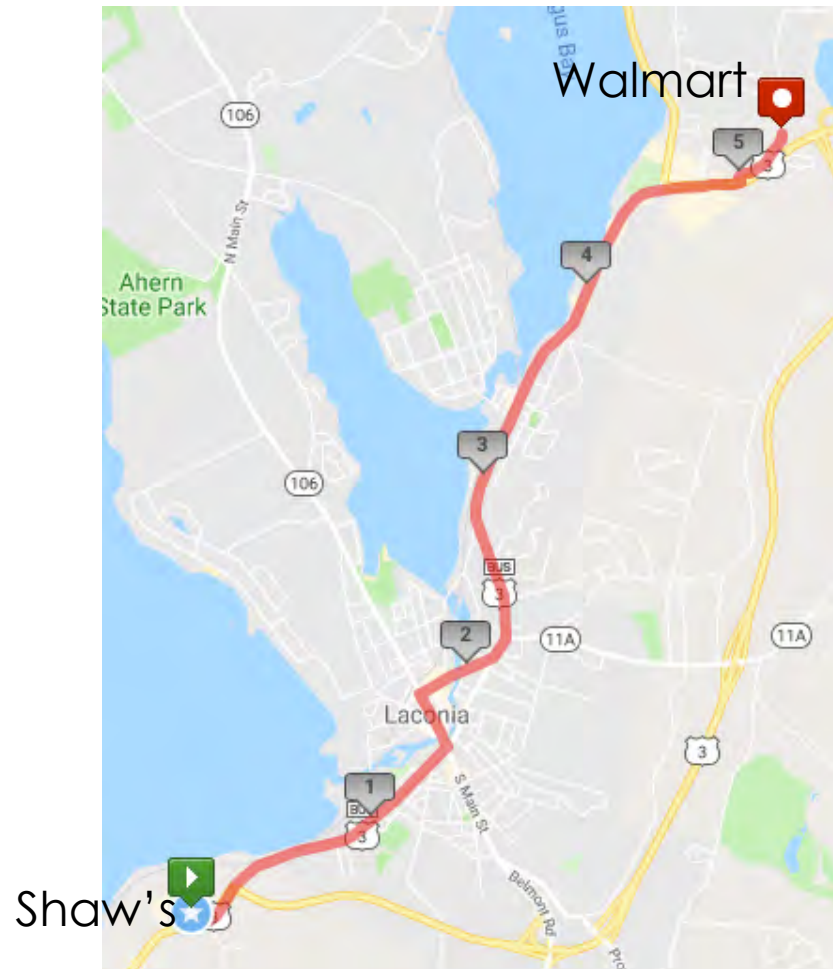


# Laconia Concepts

- Local shuttle between Shaw's in Belmont and Walmart in Gilford via US 3 Business
  - Diverts through downtown Laconia via Main St and Church St.
  - One bus at 60-minute headway
  - Operate 6:00 a.m. to 7:00 p.m. Mon-Fri
  - Estimate of annual gross cost: \$250,000



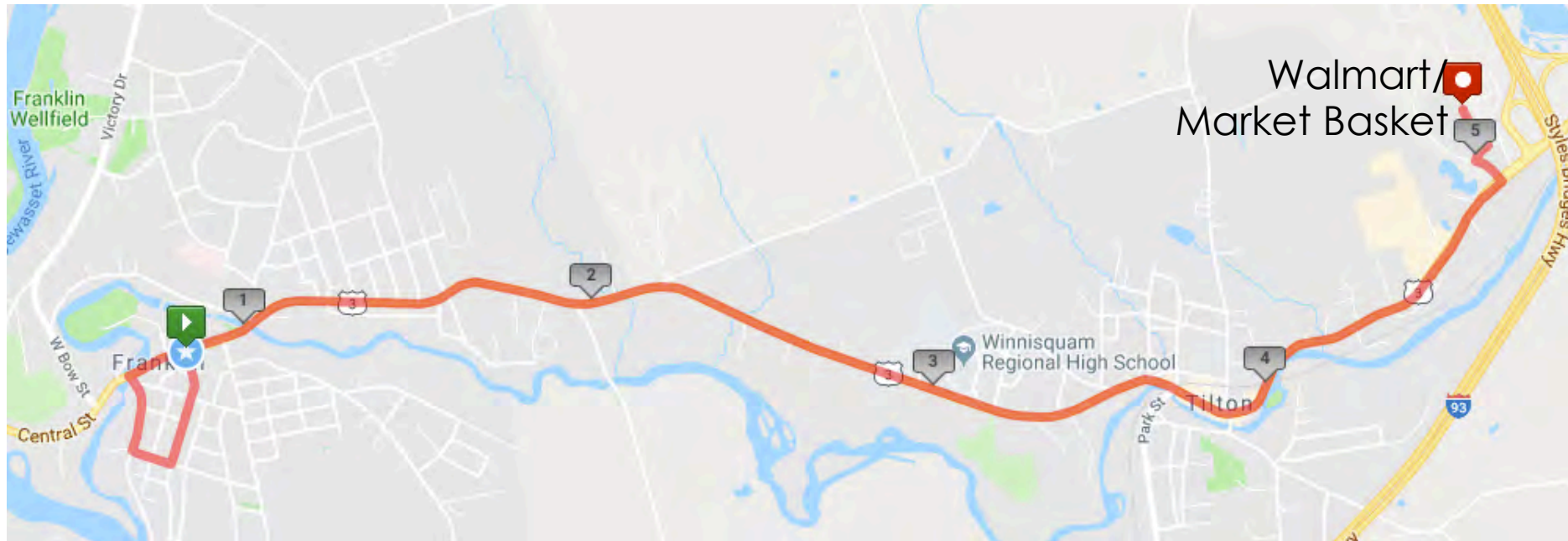
# Laconia Shuttle



# Franklin/Tilton Concepts

- Shuttle from center of Franklin to Tilton/Exit 20 retail area
  - One bus at 60-minute headway
  - Operate 6:00 a.m. to 7:00 p.m. Mon-Fri
  - Estimate of annual gross cost: \$250,000

# Franklin-Tilton Shuttle



# Local Service Summary

Route	Headway	Days of Service	Annual Revenue Hrs	Annual Gross Cost*	Urban/Rural
Conway	30/60	100	2,000	\$150,000	Rural
Plymouth	40	255	3,315	\$250,000	Rural
Suncook	60	255	3,315	\$250,000	Urban
Milford	60	156	1,400	\$105,000	Urban
Exeter	60	255	3,315	\$250,000	Urban
Laconia	60	255	3,315	\$250,000	Rural
Franklin/Tilton	60	255	3,315	\$250,000	Rural
TOTAL				\$1,505,000	

\* Cost per revenue hour assumed at \$75 for all services

# Commuter/Regional Needs

- Longer trips within New Hampshire very difficult to accomplish in most corridors
  - Intercity service makes few stops; not structured for intra-state travel
  - Example: cannot use Dartmouth Coach to travel from Upper Valley to Concord or Manchester, even though passes through
- Only a few existing commuter/regional routes
  - Manchester – Concord
  - Manchester – Nashua
  - Canaan – Lebanon
  - Rochester – Kittery (and similar COAST services)

# Potential Commuter Routes

- Keene – Concord
- Claremont – Hanover
- Hanover – Concord
- Laconia – Concord
- Rochester – Concord
- Portsmouth – Manchester
- Salem-Windham-Londonderry – Manchester
- Salem – Nashua – Milford

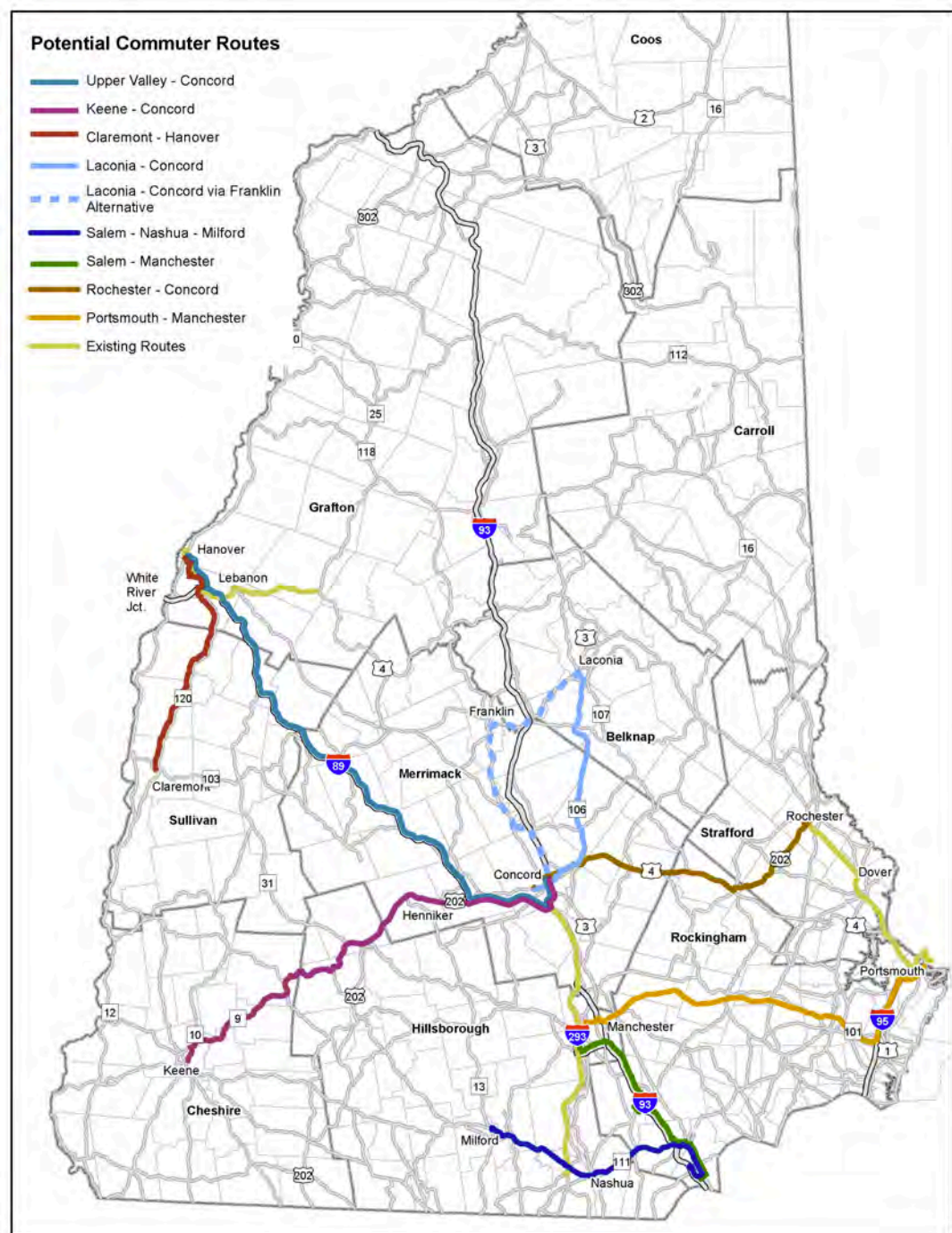
# Assumptions

- Four round-trips per weekday (2 AM, 2 PM)
  - Two buses needed for each route
  - Each bus runs one round-trip per peak period
- Cost is average of \$125 per vehicle revenue hour (VRH) and \$4 per vehicle revenue mile (VRM)
  - Evens out effects of traffic congestion and road types
  - No assumptions for fare levels yet
- Ridership is 4% of peak direction market and 1% of reverse peak
  - Also included 1% of some neighboring communities if Park & Ride lot is present
  - Based on experience with Vermont commuter routes



# Potential Commuter Network

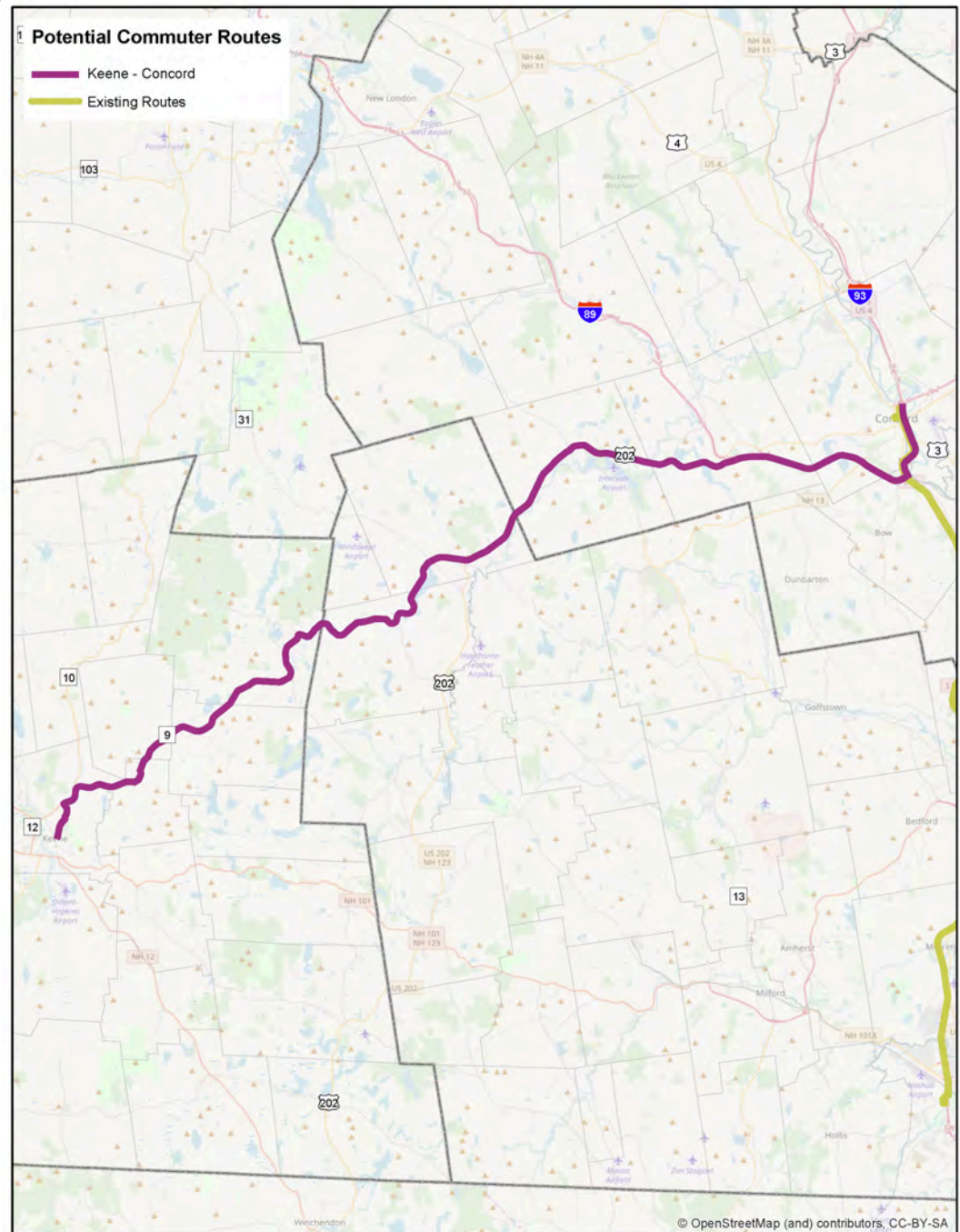
- Links together most important employment centers in southern half of the state
- North Country linked via intercity routes





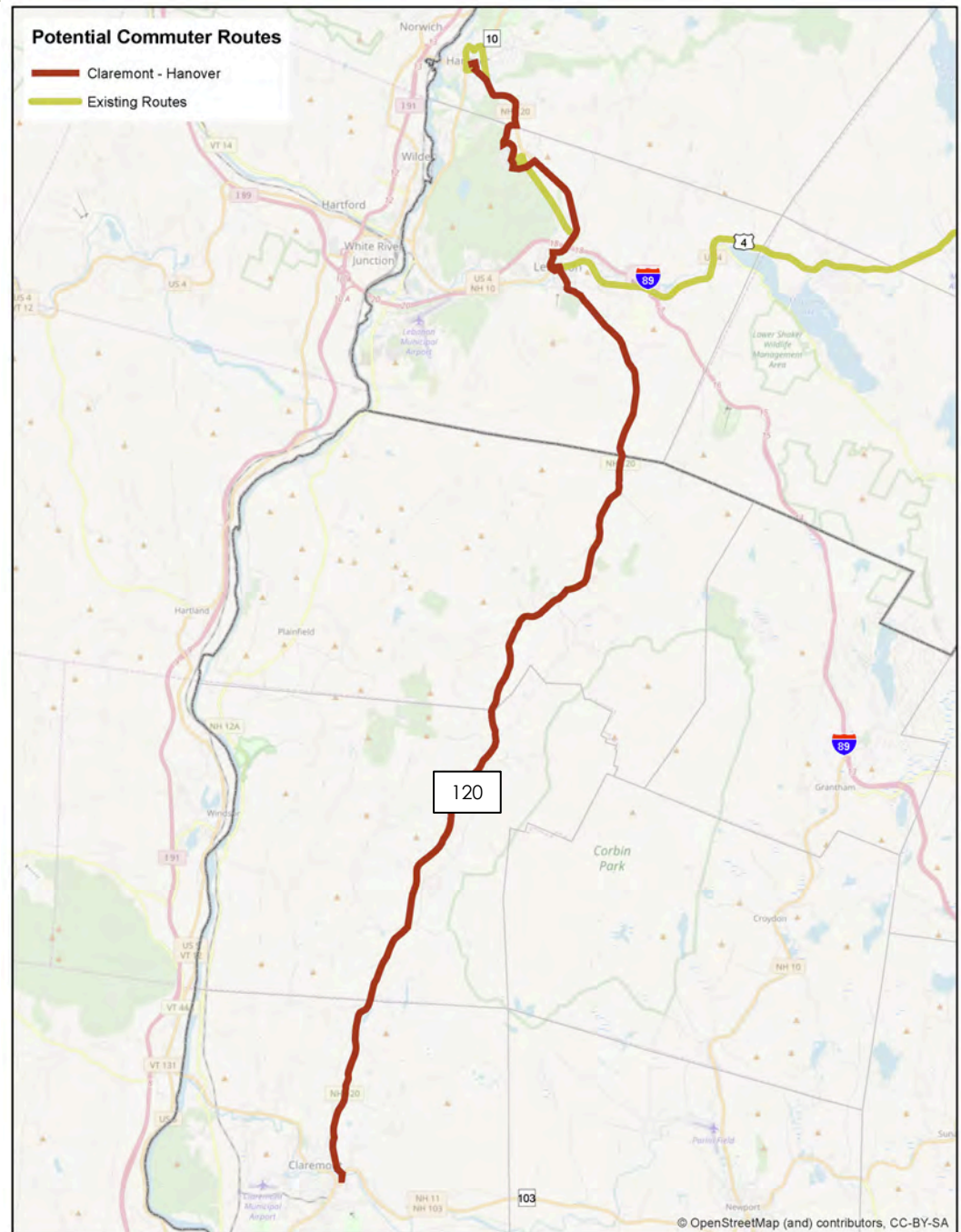
# Keene – Concord

- 53 miles
- Estimated time: 80 minutes
- Annual VRH: 2,720
- Annual gross cost: \$386,000
- Estimated daily riders: 75
- Annual riders: 19,000
- Gross cost per rider: \$21



# Claremont – Upper Valley

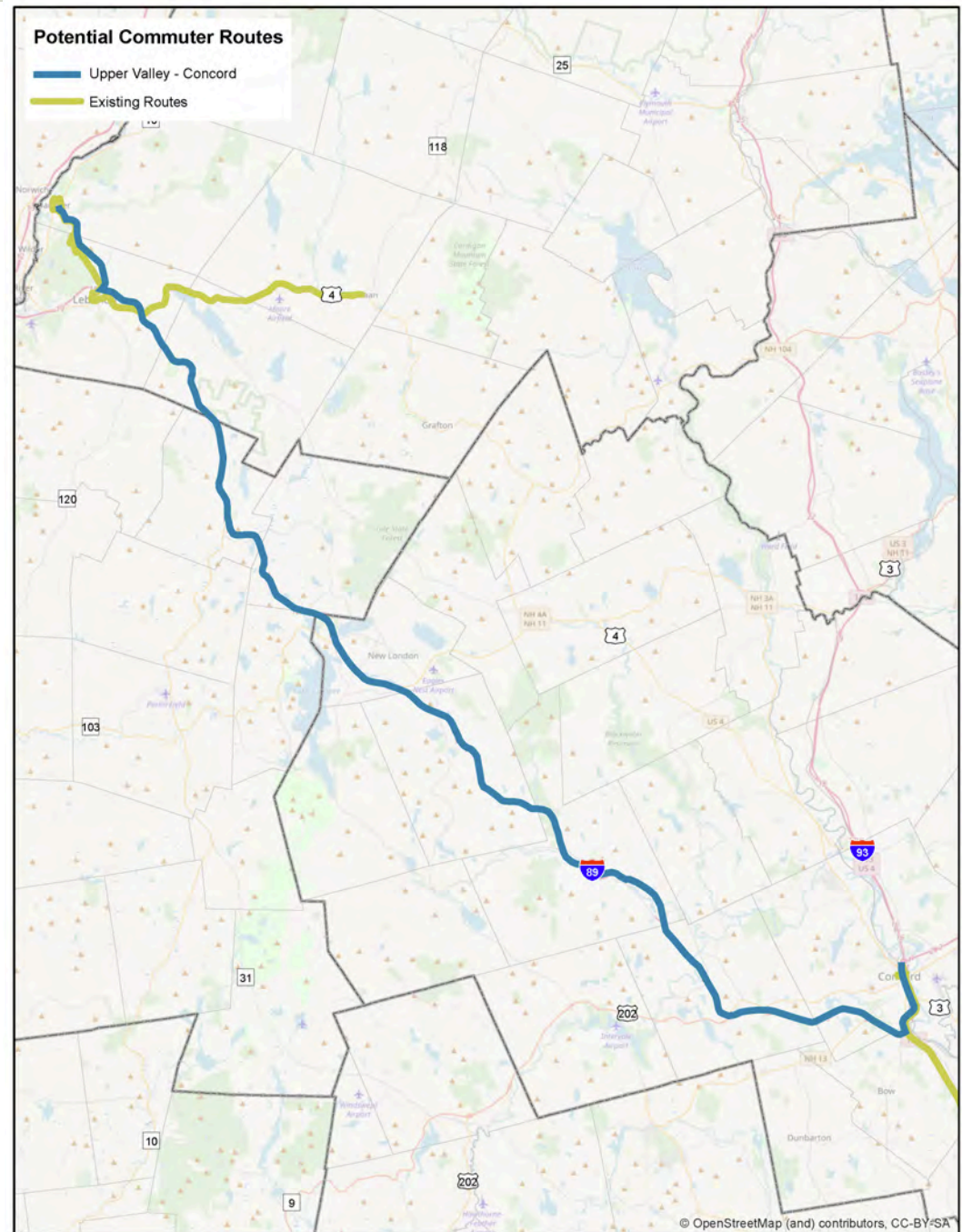
- 28 miles
- Estimated time: 68 minutes
- Annual VRH: 2,320
- Annual gross cost: \$260,000
- Estimated daily riders: 100
- Annual riders: 26,000
- Gross cost per rider: \$10





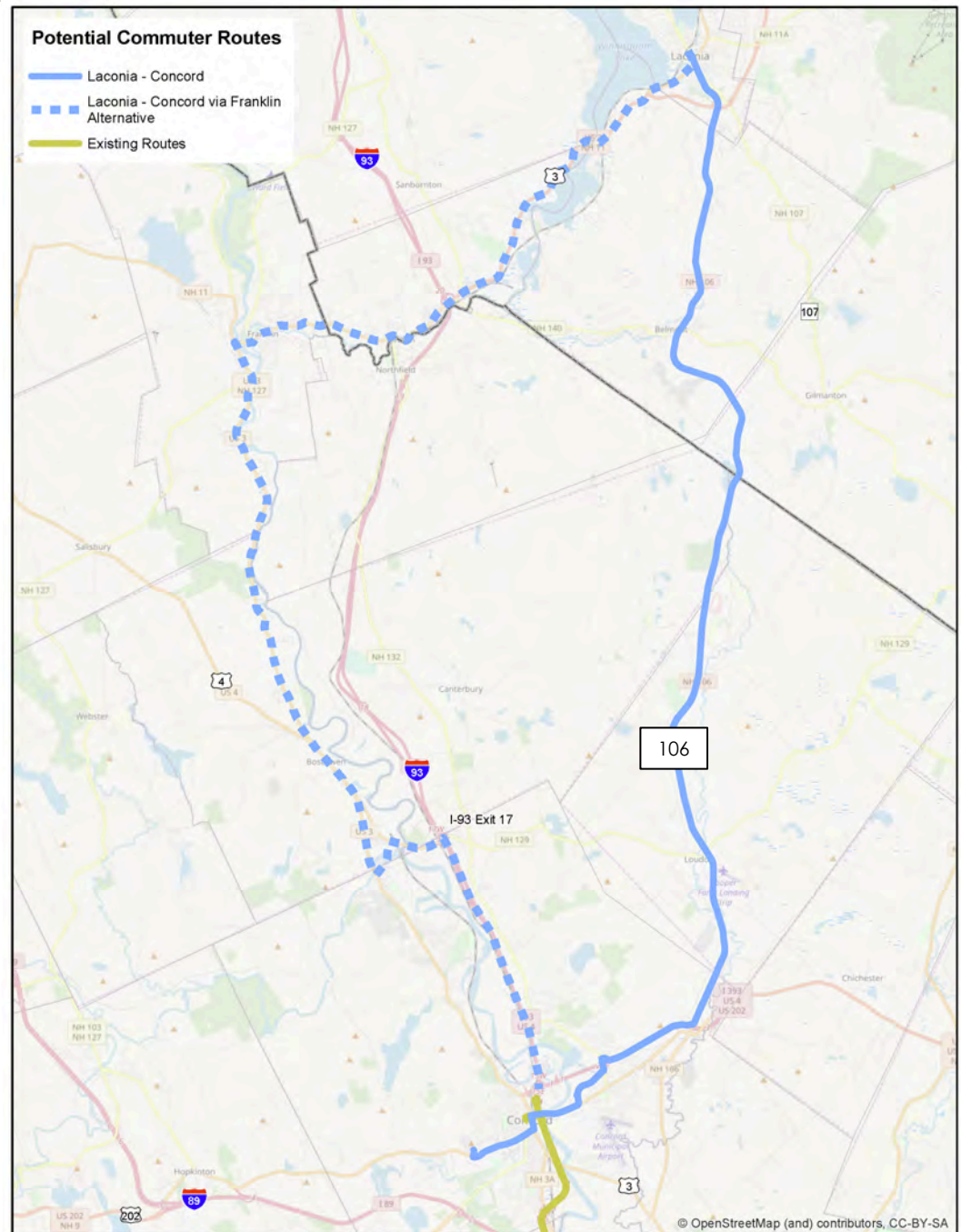
# Upper Valley – Concord

- 69 miles
- Estimated time: 95 minutes
- Annual VRH: 3,230
- Annual gross cost: \$485,000
- Estimated daily riders: 135
- Annual riders: 34,000
- Gross cost per rider: \$14



# Laconia – Concord

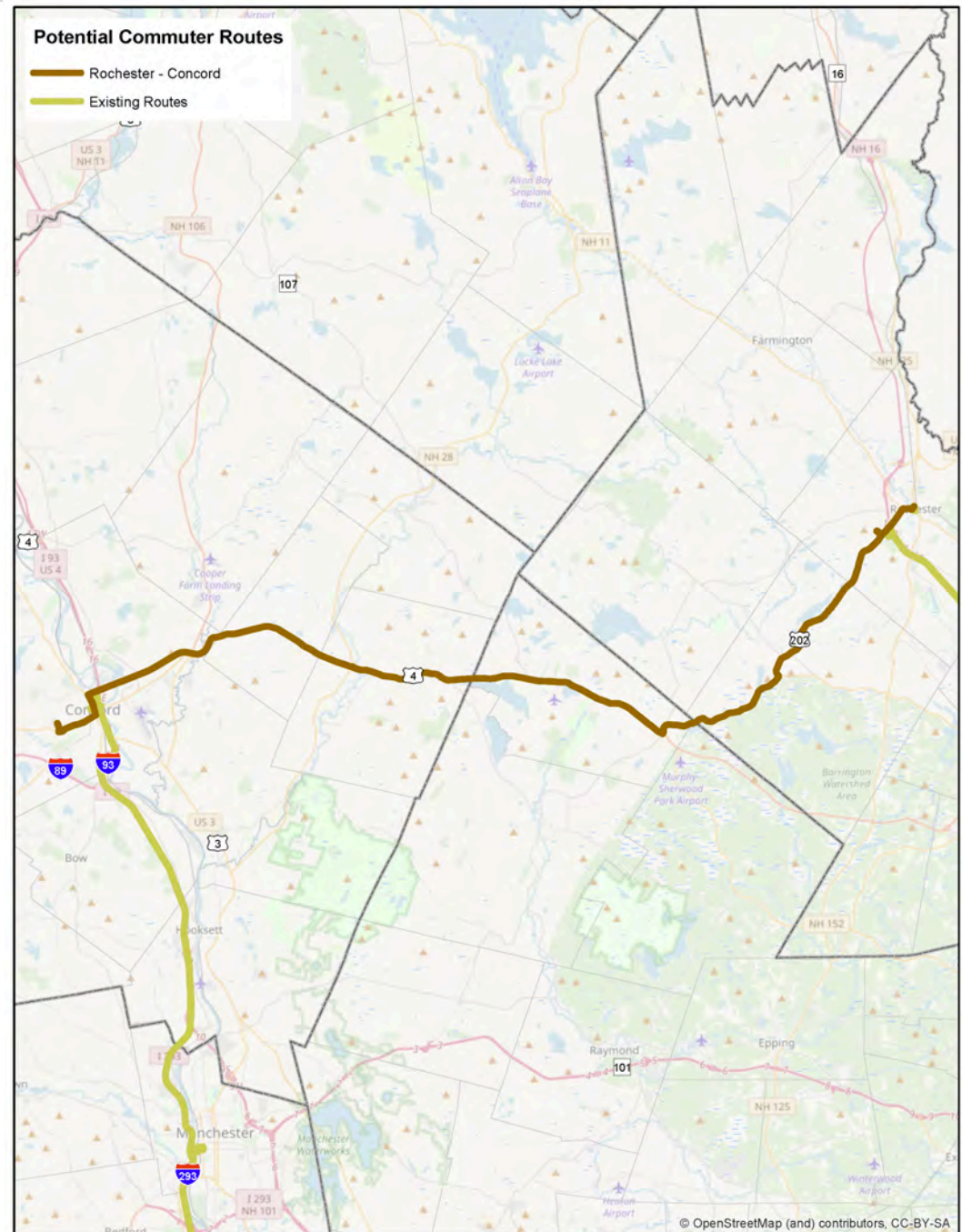
- 29 miles (direct route)
- Estimated time: 55 minutes
- Annual VRH: 1,870
- Annual gross cost: \$234,000
- Estimated daily riders: 50
- Annual riders: 12,000
- Gross cost per rider: \$19





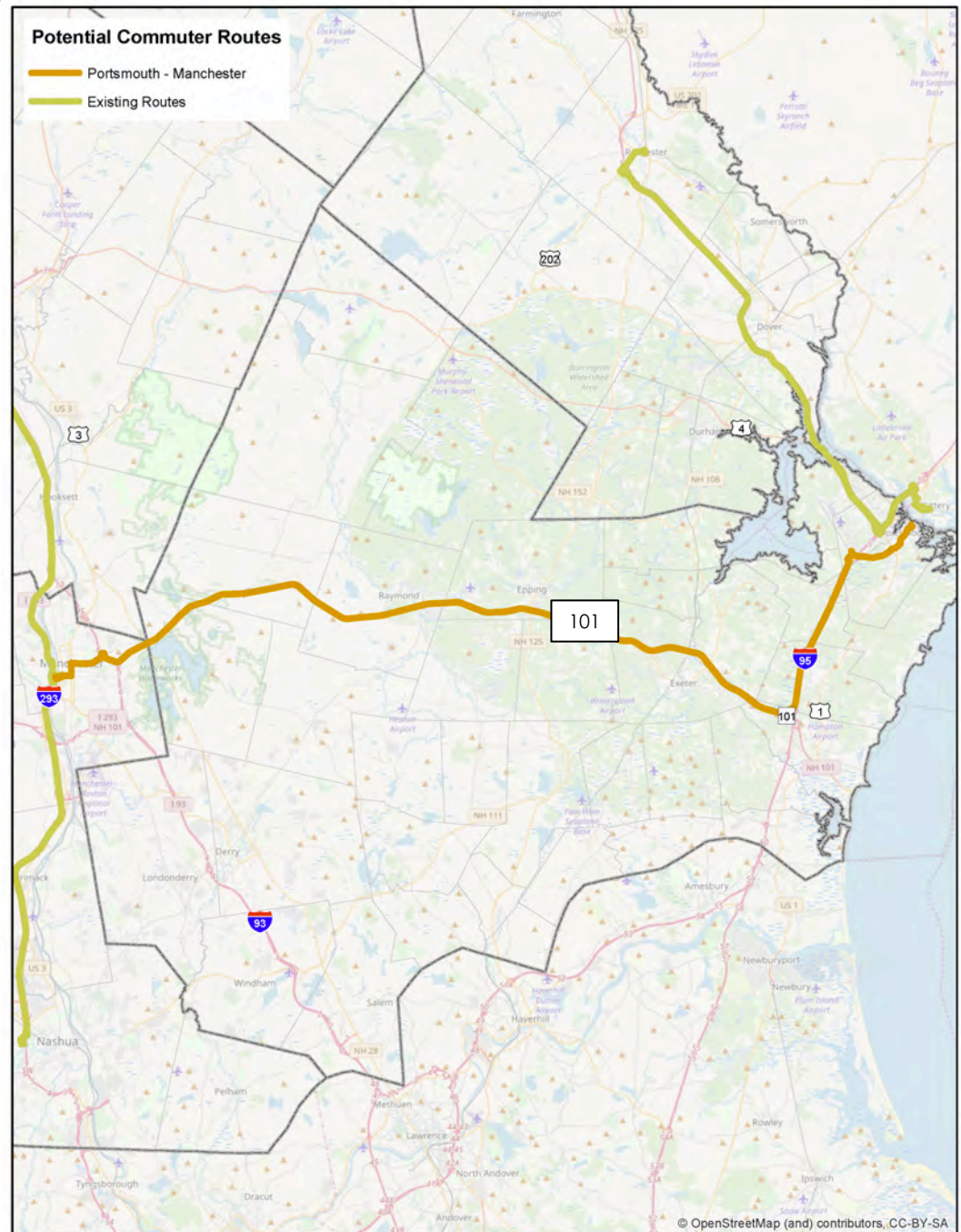
# Rochester – Concord

- 37 miles
- Estimated time: 75 minutes
- Annual VRH: 2,550
- Annual gross cost: \$312,000
- Estimated daily riders: 90
- Annual riders: 23,000
- Gross cost per rider: \$13
- Connects directly to Concord Hospital



# Portsmouth – Manchester

- 47 miles
- Estimated time: 75 minutes
- Annual VRH: 2,550
- Annual gross cost: \$349,000
- Estimated daily riders: 100
- Annual riders: 26,000
- Gross cost per rider: \$13
- Connects directly to UNH Manchester

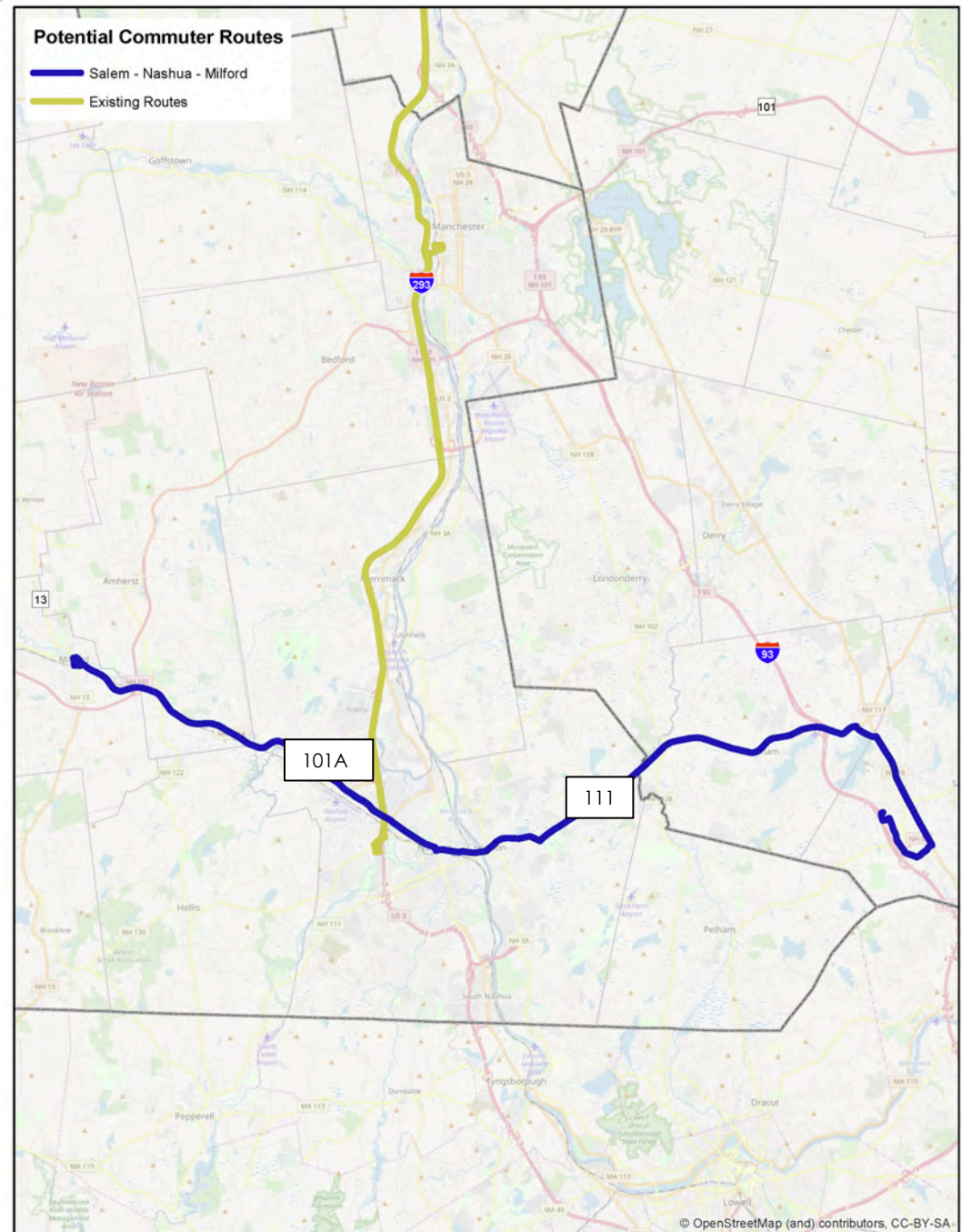




- 
- Potential Commuter Routes**
- Salem - Manchester
  - Existing Routes
- The map displays a network of roads in southern New Hampshire. A thick green line represents the proposed 'Salem - Manchester' route, starting in Salem, passing through Windham, Derry, Londonderry, Merrimack, and ending in Manchester. Yellow lines represent 'Existing Routes'. Major highways shown include I-93, I-293, I-101, US 3, and NH 101. Other labeled locations include Nashua, Hudson, Fitchfield, and Manchester-Boston Regional Airport. The map also shows geographical features like Moulton Brook and various lakes.

# Salem – Nashua – Milford

- 29 miles
- Estimated time: 85 minutes
- Annual VRH: 2,890
- Annual gross cost: \$300,000
- Estimated daily riders: 75
- Annual riders: 19,500
- Gross cost per rider: \$15





# Commuter Routes Summary

Route	Miles	Annual Cost	Annual Riders	Cost/ Rider
Keene-Concord	53	\$386,000	19,000	\$21
Claremont-Hanover	28	\$260,000	26,000	\$10
Hanover-Concord	70	\$485,000	34,000	\$14
Laconia-Concord	29	\$234,000	12,000	\$19
Rochester-Concord	37	\$312,000	23,000	\$13
Portsmouth-Manchester	47	\$349,000	26,000	\$13
Salem-Londonderry-Manchester	26	\$211,000	42,000	\$5
Salem-Nashua-Milford	30	\$301,000	19,000	\$15
TOTALS		\$2,538,000	201,000	\$13

# Operations

- No particular operator assumed for any of the routes
  - Could be contracted to private entity or run by transit providers
- Several routes connect two provider regions
  - Joint operations by the providers could result in the most efficient operation (little/no deadheading)
  - Mix of urban and rural funding could be tricky but not impossible
  - Four commuter routes in VT operated jointly
- Vehicle types unspecified as yet – could vary by route

# Next Steps

- Outreach on priorities
  - RPCs and NHTA
  - General public through Survey Monkey
- Investigate funding sources
- Develop tiers of recommendations, similar to Intercity routes

# Peer Analysis

- Compared amount of service provided to that in other areas similar in terms of population and geographic area
- Used National Transit Database data from FY2017
  - Developed separate sets of peers for each urban operator
  - Grouped rural operators into two sets
- Focused on bus mode; set aside stats on demand response service and other modes
- VOMS=vehicles operated in maximum service
- VRH=vehicle revenue hours (WD=average weekday)

# Nashua – 17 peer systems

Item	Nashua	Peer Avg.		
Service Area	32 sq. mi.	35 sq. mi	Yakima Transit	WA
Population	86,933	89,207	Greater Roanoke Transit Company	VA
Bus VOMS	9	21	Mid Mon Valley Transit Authority	PA
Bus WD VRH	113	215	ART (Asheville Redefines Transit)	NC
Annual VRH	32,981	62,284	Kenosha Transit	WI
Ann. Op. Exp.	\$1.86 m	\$4.99m	St. Cloud Metropolitan Transit Commission	MN
			Gary Public Transportation Corporation	IN
			Decatur Public Transit System	IL
			Eau Claire Transit	WI
			Bloomington Public Transportation Corp.	IN
			City of Plymouth	MN
			Beaumont Municipal Transit System	TX
			Iowa City Transit	IA
			City of Lawrence	KS
			Cache Valley Transit District	UT
			City of Scottsdale - Scottsdale Trolley	AZ
			City of Turlock	CA

# COAST – 20 peer systems

Item	COAST	Peer Avg.
Service Area	368 sq. mi.	351 sq. mi
Population	166,975	171,654
Bus VOMS	14	29
Bus WD VRH	154	276
Annual VRH	41,941	81,237
Ann. Op. Exp.	\$3.82 m	\$7.05 m

Berkshire Regional Transit Authority	MA
Southeast Area Transit	CT
Cape Cod Regional Transit Authority	MA
Tompkins Consolidated Area Transit	NY
Beaver County Transit Authority	PA
County Commissioners of Charles County, MD	MD
County of Lebanon Transit Authority	PA
Chattanooga Area Regional Transportation Auth.	TN
Cape Fear Public Transportation Authority	NC
Chatham Area Transit Authority	GA
Indian River County	FL
Portage Area Regional Transportation Authority	OH
Bay Metropolitan Transit Authority	MI
Laketran	OH
Madison County Transit District	IL
Medina County Public Transit	OH
Delaware County Transit Board	OH
Transit Joint Powers Authority for Merced County	CA
Butte County Association of Governments	CA
Imperial County Transportation Commission	CA

# Manchester – 19 peer systems

Item	MTA	Peer Avg.
Service Area	63 sq. mi.	63 sq. mi
Population	135,366	124,996
Bus VOMS	13	22
Annual VRH*	48,529	60,719
Ann. Op. Exp.	\$3.29 m	\$5.55 m

Greater Portland Transit District	ME
UNH - University Transportation Services	NH
City of Huntsville	AL
Macon-Bibb County Transit Authority	GA
Town of Cary	NC
Bay County Transportation Planning Org.	FL
City of Murfreesboro	TN
Duluth Transit Authority	MN
South Bend Public Transportation Corporation	IN
Springfield Mass Transit District	IL
Wichita Falls Transit System	TX
Las Cruces Area Transit	NM
City of Tyler	TX
Sioux City Transit System	IA
Topeka Metropolitan Transit Authority	KS
City of Columbia	MO
Transfort	CO
Mesa County	CO
Solano County Transit	CA

\*MTA is a reduced reporter and does not report weekday VRH

# CART – 9 peer systems

Item	CART	Peer Avg.
Service Area	172 sq. mi.	187 sq. mi
Population	112,897	110,873
Bus VOMS	8	22
Annual VRH*	6,912	33,467
Ann. Op. Exp.	\$539,811	\$2,494,992

Cape May County Fare Free Transportation	NJ
Shenango Valley Shuttle Service	PA
Fredericksburg Regional Transit	VA
Tuscaloosa County Parking and Transit Auth.	AL
Douglas County Rideshare	GA
Lake Erie Transit	MI
Cleveland Area Rapid Transit	OK
River Parishes Transit Authority	LA
Peoria Transit	AZ

\*CART is a reduced reporter and does not report weekday VRH



# Larger Rural Systems – 10 peers

Item	Peer Avg.	AT	TCC	SCST
Service Area	28 sq. mi	45 sq. mi.	45 sq. mi.	36 sq. mi.
Population	30,670	30,000	15,000	20,000
Bus VOMS	12	18	4	6
Annual VRH	15,011	43,068	5,782	4,127
Ann. Op. Exp.	\$927,124	\$3,698,664	\$276,066	\$254,981

Asotin County PTBA	WA
Weirton Transit Corporation	WV
Bristol Tennessee Transit System	TN
Goldsboro-Wayne Transportation Auth.	NC
Municipality of Barceloneta	PR

Liberty Transit	GA
Citrus County Transit	FL
Wausau Area Transit System	WI
Michigan City Transit	IN
Intracity Transit	AR

# Smaller Rural Systems – 10 peers

Item	Peer Avg.	VNA-HCS	CAT
Service Area	13 sq. mi	8 sq. mi.	18 sq. mi.
Population	25,120	20,000	30,000
Bus VOMS	7	3	6
Annual VRH	11,280	7,184	8,294
Ann. Op. Exp.	\$822,186	\$455,659	\$833,769

City of Kingston Citibus	NY
East Windsor Township	NJ
Watertown CitiBus	NY
Bristol Virginia Transit	VA
City of Winchester	VA

Anderson Transit Authority	SC
City of Beloit Transit System	WI
Twin Cities Area Transportation Authority	MI
Steel Valley Regional Transit Authority	OH
Southeast Missouri State University	MO

# Peer Analysis Takeaways

- Most NH urban systems operate about half the amount of service that their peers do
  - MTA somewhat more than half, CART only about a fifth
- Among rural systems:
  - AT operates well more than the peers: three times the hours, four times the expense, even without any weekend service
  - TCC and SCT operate about a third of the service that peers do
  - Keene service is about 2/3 of the peer service (but has smaller service area and lower population)
  - CAT operates 3/4 of the hours, but has higher total operating cost than the peers

# Technology Discussion Overview

- Description of most appropriate technologies
- Dependencies among technologies
- Next steps

# Transit Technology “Menu”

Fleet Operations and Management

Traveler Information

Safety and Security

Automated Fare Payment

Maintenance

Other

Dependencies Among Technologies

# Transit Technology “Menu”



Fleet Operations and Management

Traveler Information

Safety and Security

Automated Fare Payment

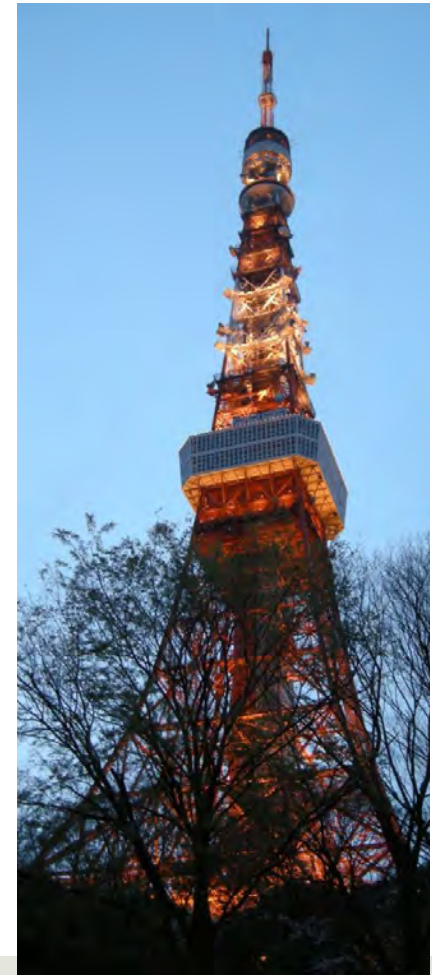
Maintenance

Other

Dependencies Among Technologies

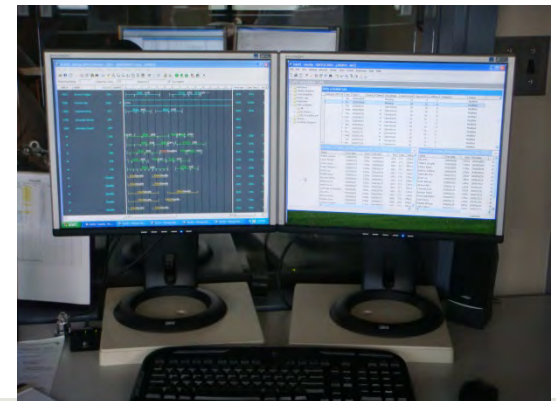
# Communications Technologies

- Depend on infrastructure and devices **used to transmit voice and data**
- Can **transmit voice, text, data, and video** over radio, cellular, or other wireless networks
- Types of **wireless networks**:
  - Wide area wireless (WAW)
  - Wireless local area network (WLAN)
  - Dedicated short-range communications (DSRC)
  - Land line and cellular telephone networks
  - Internet and intranet



# Automatic Vehicle Location (AVL) & Computer-aided Dispatch (CAD)

- For **operations management**, periodically receives real-time updates on vehicle locations and schedule/route status
- **Onboard computer** with Global Positioning System (GPS) and mobile data communications
- Provides decision support tools used by dispatchers and supervisors, allowing **proactive management of operations**
- Allows for "**single point**" logon for all onboard systems



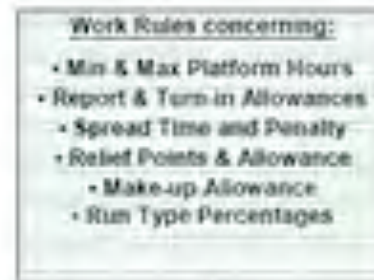
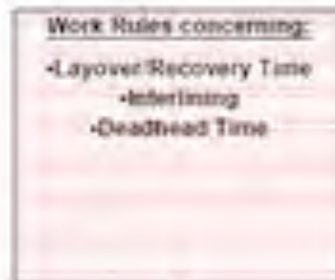


# Automatic Passenger Counters (APCs)

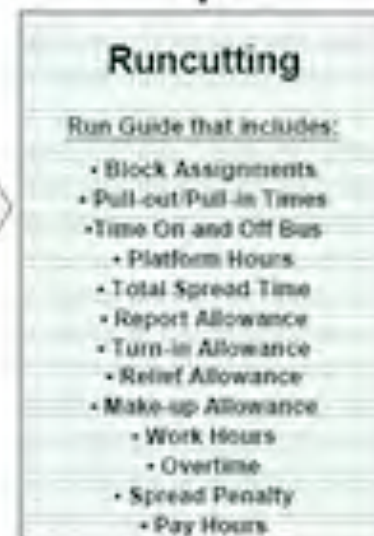
- **Monitors passenger activity** and uses algorithm to count number of boarding and alighting passengers
- Data can either be **stored for downloading/ uploading or transmitted in real-time**
- Most common type is **infrared technology**
- Ability to "stamp" data with exact bus stop location and time of day through **integration with AVL**
- Transit operators typically deploy **APC equipment on 12–25% of their vehicles** and then rotate the vehicles on different routes as needed

# Fixed-Route Scheduling Software

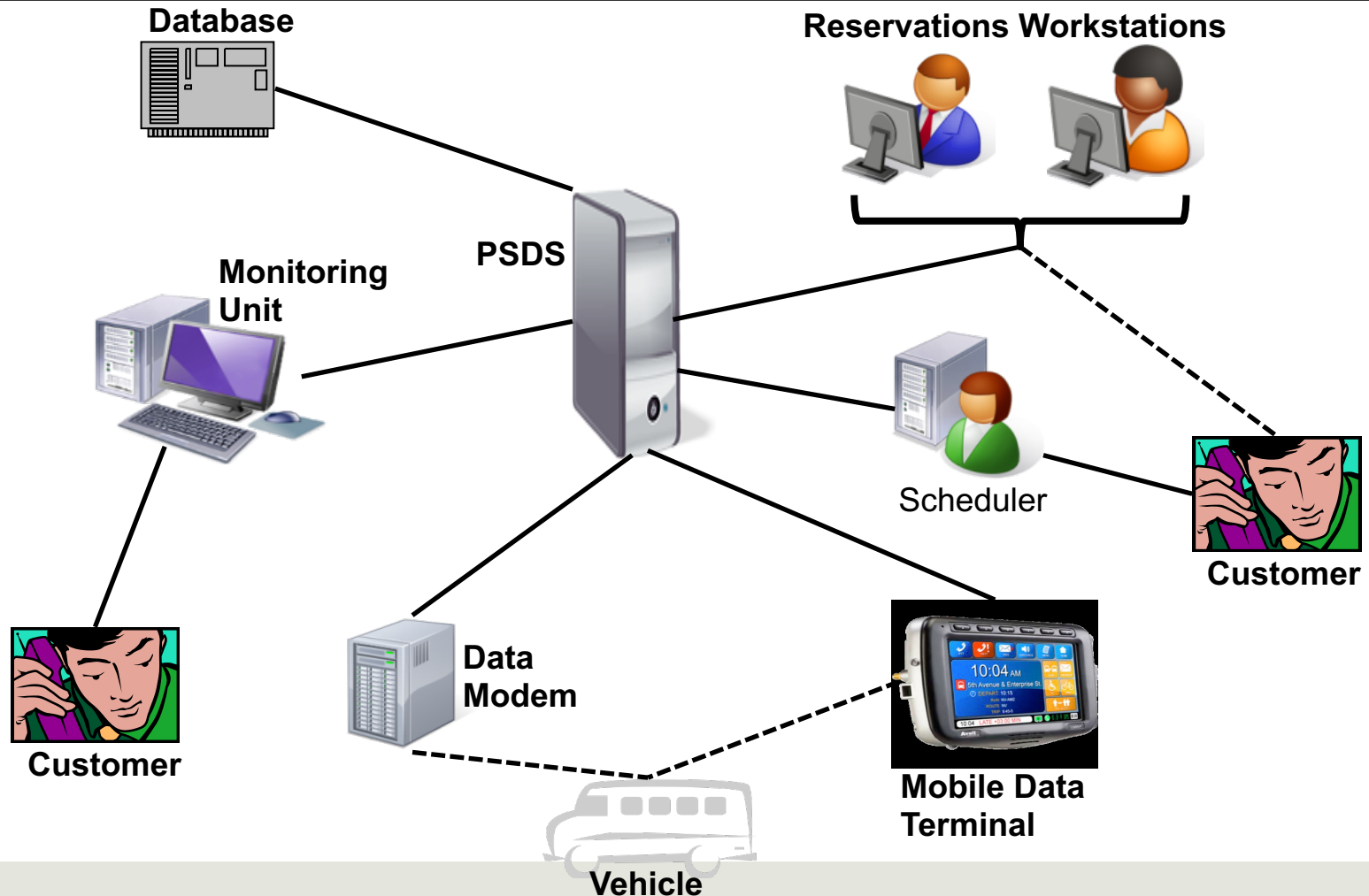
## INPUTS



## OUTPUTS



# Paratransit Scheduling & Dispatching Software



# Transit Signal Priority (TSP)

- ❑ Give authorized transit vehicles **ability to automatically change timing** of traffic signals
- ❑ Can be limited to **extending green cycle**, but can result in red cycle truncation and phase insertion
- ❑ **May be done “conditionally”** based on passenger load, type of service (Bus Rapid Transit (BRT) vs. local), and schedule adherence

# TSP (continued)

- Interaction of four major elements:
  - Transit vehicle
  - Transit fleet management
  - Traffic control
  - Traffic control management
- Enhanced with four functional applications: vehicle detection, priority request generation (PRG)/PR server (PRS), TSP control strategies and TSP system management

# Transit Technology “Menu”

Fleet Operations and Management



Traveler Information

Safety and Security

Automated Fare Payment

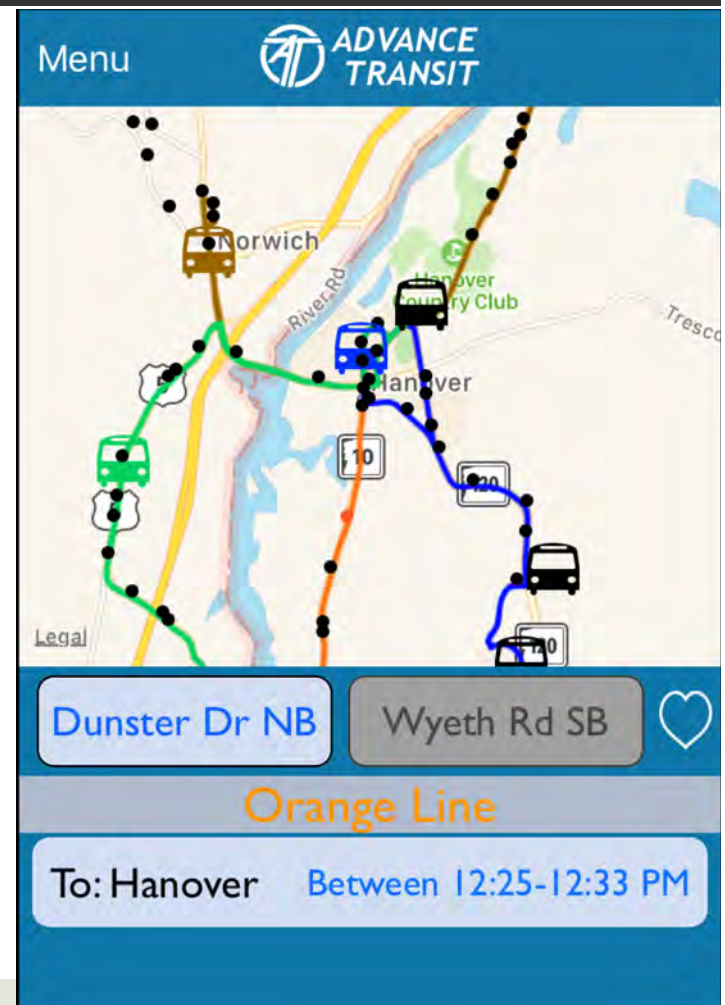
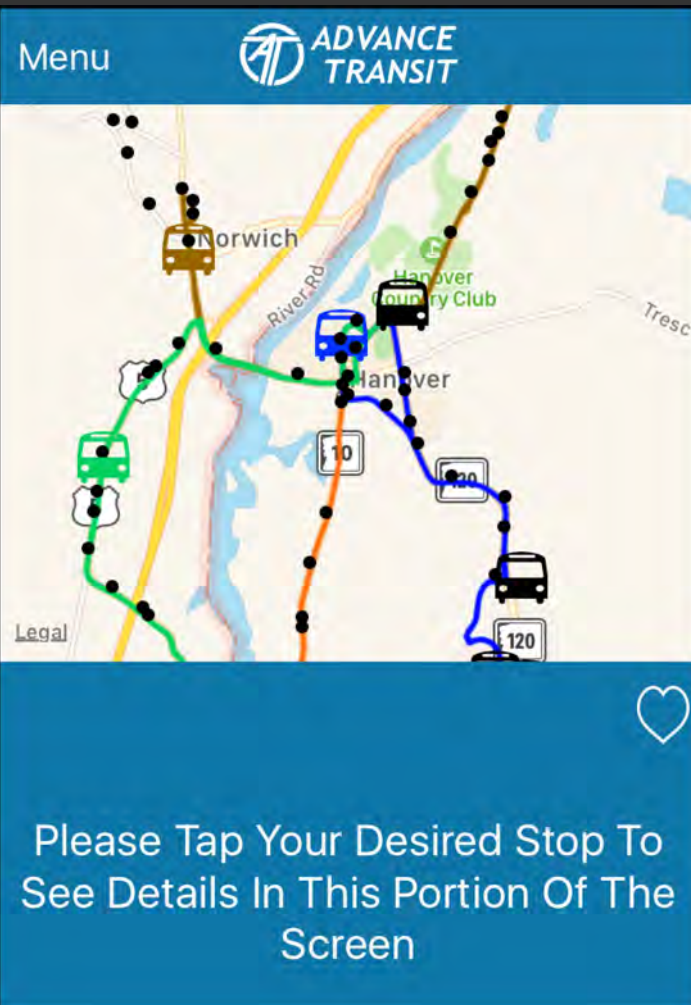
Maintenance

Other

Dependencies Among Technologies



# Third-Party Smartphone Applications



# Third-Party Smartphone Applications

## FAVORITE STOPS




### DISPLAY ON MAP

- ☒ Shuttles
- ☒ Brown Line
- ☒ Red Line
- ☒ Green Line
- ☒ Orange Line
- ☒ Blue Line

## TUTORIAL

[View Tutorial](#)

## FEEDBACK

-  [Email Advance Transit](#)
-  [Call Advance Transit](#)
-  [Submit Feedback](#)



# Automatic Voice Announcements (AVA)

- **Audio and visual announcements** to onboard riders and those waiting to board
- As fixed-route vehicle approaches stop or other designated location:
  - Digitally recorded **announcement automatically made** over onboard public address system speakers
  - **Displayed on dynamic message signs** inside vehicle to inform passengers about upcoming stops, major intersections landmarks
  - Can make time-based, location-based, and vehicle operator-initiated announcements/displays

# AVA (continued)



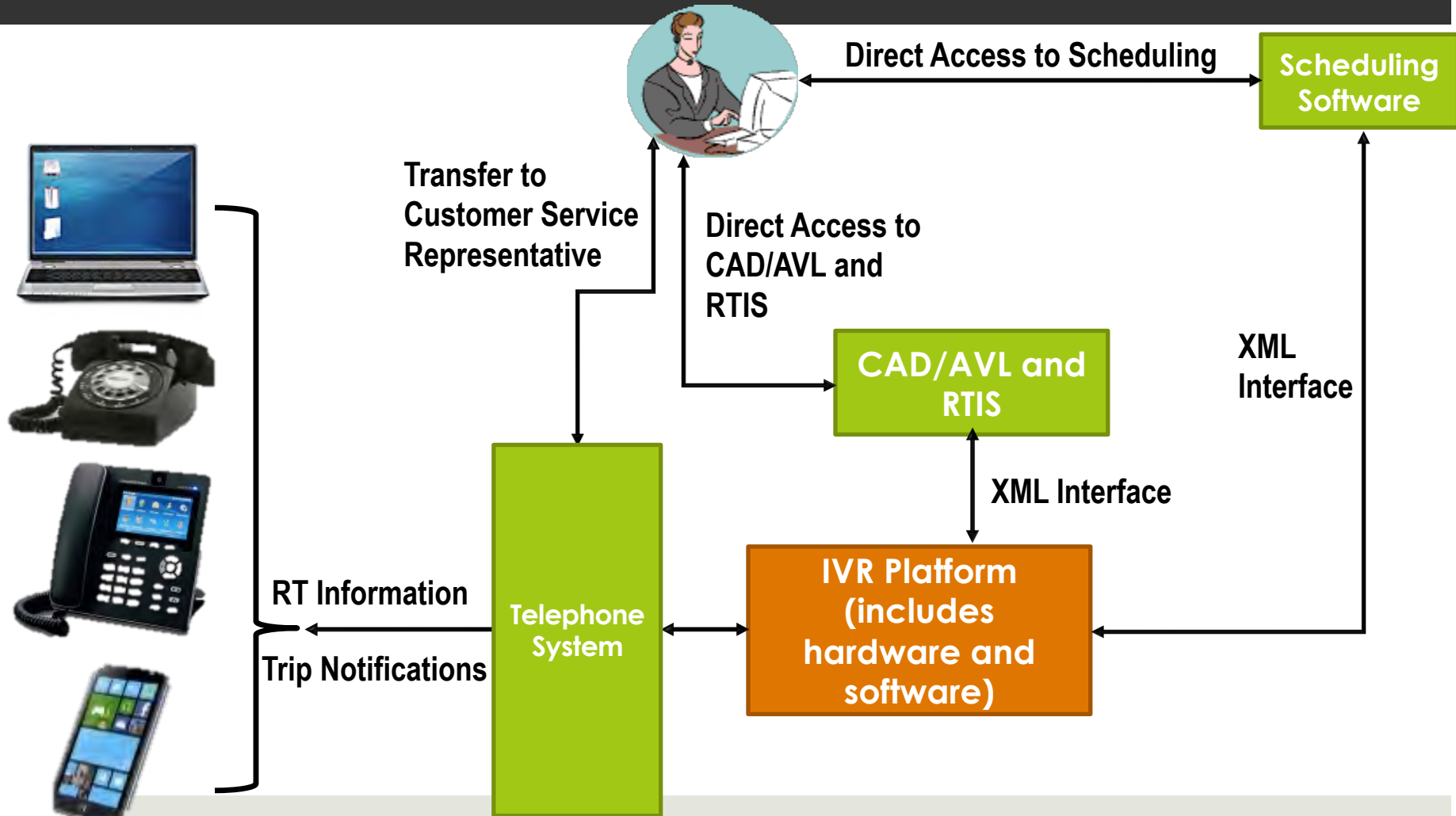
# En-route/Wayside Traveler Information



# Onboard Internet Access

- Being provided particularly on vehicles that service **lengthy routes**
- Some agencies **leverage onboard communications hardware** that provides both data communication for
  - Agency
  - Wi-Fi for passengers

# Interactive Voice Response (IVR)



# Google Transit and OpenTripPlanner

## ▣ Google Transit

- ▣ General Transit Feed Specification (GTFS)
- ▣ GTFS-realtime
- ▣ GTFS-flex
- ▣ GTFS-vehicles
- ▣ GTFS-ride

## ▣ OpenTripPlanner



# Transit Technology “Menu”

Fleet Operations and Management

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Safety and Security

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Dependencies Among Technologies

# Mobile and Fixed Video Surveillance

- ▣ Review recorded images
- ▣ Potential crime prevention
- ▣ Identify criminal activity and perpetrator(s)
- ▣ Identify improper passenger and driver behavior
- ▣ Incident/insurance investigation



# Mobile and Fixed Video Surveillance (continued)



# Covert Emergency Alarm and Covert Live Audio Monitoring

- Allows **dispatchers to listen in** on what is happening inside vehicle while an incident is taking place
- **Covert microphones are one-way communications** in order not to alert person responsible for incident that dispatcher/police are listening in
- Driver in distress presses **covert switch** that:
  - Activates covert microphone
  - Monitor in dispatcher's office automatically displays information for that vehicle
  - Map display zooms in on that vehicle

# Transit Technology “Menu”

Fleet Operations and Management

Traveler Information

Safety and Security



Automated Fare Payment

Maintenance

Other

Dependencies Among Technologies

# Automated Fare Media

- Magnetic stripe cards
  - Smart cards - integrated circuit (or chip) card that has microprocessor and built-in logic: contact, contactless, and combi-card
  - Mobile payment
- 
- Accommodate options such as stored value, stored trip, various lengths of passes, and fare-capping
  - Facilitates transfers



# Transit Technology “Menu”

Fleet Operations and Management

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Safety and Security

Automated Fare Payment



Maintenance

Other

Dependencies Among Technologies



# Maintenance: Engine and Drivetrain Systems Monitoring

- Sensors that **monitor various components** of vehicle and report back on components performance
- Maintenance supervisors can use this information to **perform preventive maintenance intervention** before minor problem becomes major and costly one
- Monitoring performed in **real-time** and problems are reported instantly

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Other

Dependencies Among Technologies

# Data Management and Reporting

- **Data generated** by transit ITS components installed in vehicles, and at central and other locations
- Data typically collected and archived **in individual databases**
- Once data archived, used for “**after-the-fact**” **analyses and reporting** by different business units within a public transport organization (e.g., planning, operations, customer service)
- Utilize true potential of data by consolidating in **central repository** to make process of data management, analysis, and reporting more efficient

# Automated Vehicles

- Strategic Transit Automation Research Plan from FTA
  - Framework to pursue transit bus automation
  - Activities identified in Enabling Research, Integrated Demonstrations, and Strategic Partnerships
- Minnesota Valley Transit Authority (MVTA) developed a lane guidance system for bus-on-shoulder operations along Cedar Avenue (Trunk Highway 77)

# Automation in Public Transport



**Vehicle Assist and Automation (OR)**



**Bus on Shoulder (MN)**



**Local Motors Olli (MD, NV)**



**GATEway Shuttle (UK)**



**EasyMile EZ10 (CA, TX, CO)**



**Hino (Japan)**



**Optimus Ride (MA)**



**Coast P-1 (FL)**



**Navya Arma (MI, NV)**



**May Mobility (MI)**

# Summary of Technology Packages and Use Cases

- Smooth Acceleration and Deceleration
- Automatic Emergency Braking and Pedestrian Collision Avoidance
- Curb Avoidance
- Precision Docking
- Narrow Lane/Shoulder Operations
- Platooning

**Transit Bus Advanced Driver Assistance System (ADAS) (L1-2)**

- Circulator Bus Service
- Feeder Bus Service

**Automated Shuttle (L4)**

- Precision Movement for Fueling, Service Bays, and Bus Wash
- Automated Parking and Recall

**Maintenance, Yard, Parking Operations (L4)**

- Automated First/Last-mile
- Automated ADA Paratransit
- On-Demand Shared Ride

**Mobility-on-Demand (MOD) Service (L5)**

- Automated BRT

**Automated Bus Rapid Transit (L4)**



# Automated Braking

- Transferability to buses studied
- Functional Description:
  - Monitors vehicles, pedestrians, and objects in the path based on distance, speed, and time
  - When potential for collision detected, warning is sent to driver
  - If driver does not react and distance or time-to-collision threshold is crossed, brake system pressurizes brake lines to reduce time it takes to apply brake torque if necessary
  - When the next distance or time threshold is crossed, the system applies a brake jerk
    - If driver still does not apply brakes, system commands zero propulsion torque and a brake torque sufficient in time and magnitude to avoid collision
    - If driver does not apply sufficient brake force to avoid collision, system commands additional brake torque to avoid the collision
  - Most systems operate above a minimum speed threshold (e.g., 5 kph or 3.1 mph).

# Transit Technology “Menu”

Fleet Operations and Management

Traveler Information

Safety and Security

Automated Fare Payment

Maintenance

Other



Dependencies Among Technologies

# Core Technology Dependencies

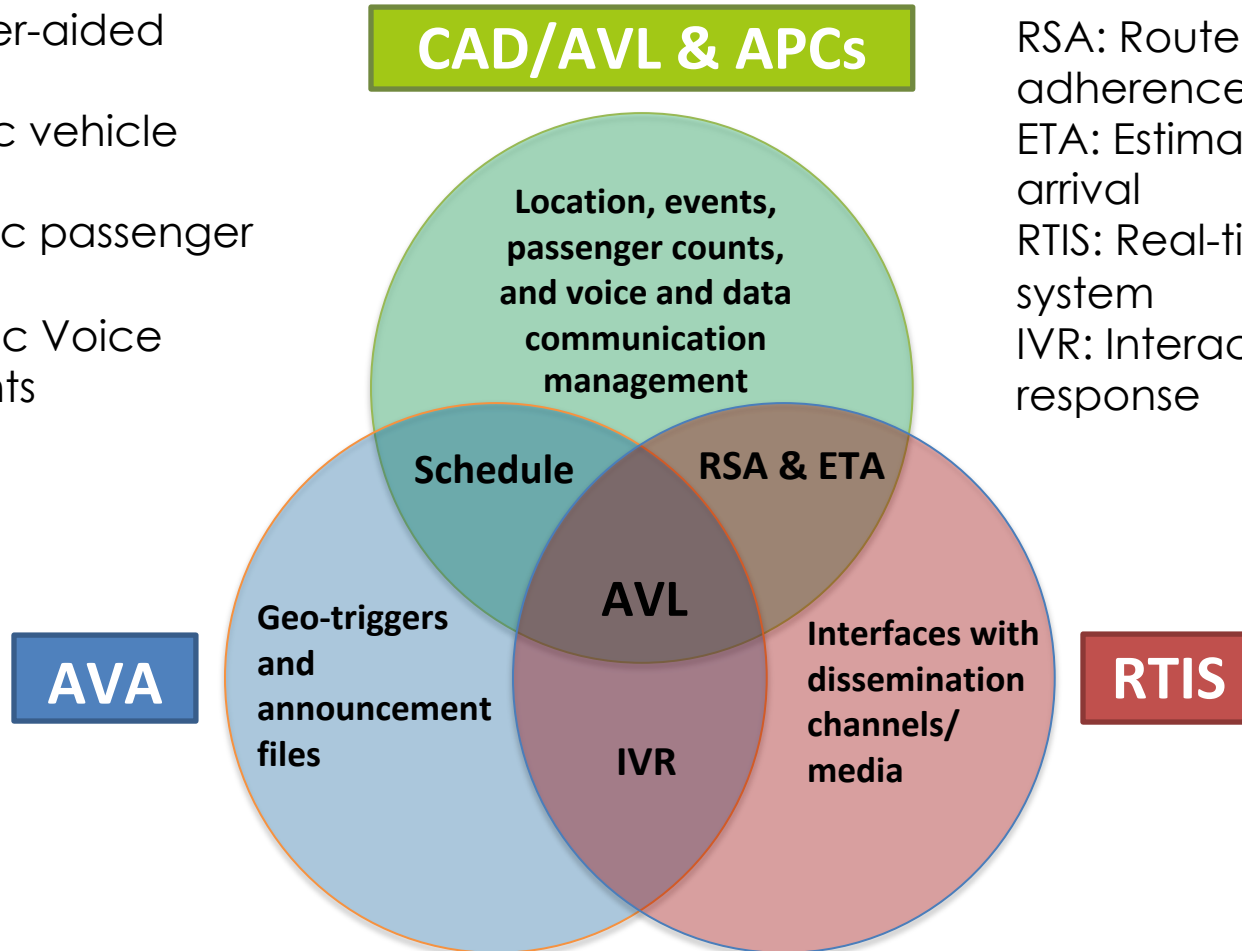
## CAD/AVL & APCs

RSA: Route & schedule adherence

ETA: Estimated time of arrival

RTIS: Real-time information system

IVR: Interactive voice response



# Next Steps

- ❑ Complete documenting recent developments in **technology-enabled mobility and transit technology** not yet implemented in NH
- ❑ Complete identifying **appropriate technology investments** for 10-year period
- ❑ Document how technology could help lead to **success of existing transit/paratransit services** and how they would be used to **facilitate new proposed services**

# Timeline

- Outreach in April/May
- Documentation in June/July
- Completion of project during summer