



V-Line Route Study DRAFT FINAL REPORT

Prepared for the City of Valparaiso (V-Line)

October 21, 2014





Moving Public Transportation Into the Future

Table of Contents

I. Introduction.....	1
Purpose and Approach	1
II. Public Input	2
Public and Focus Group Meeting Input Summary.....	2
Stakeholder Interview Summaries.....	8
City of Valparaiso	8
Covington Square Apartments	9
HealthLinc Community Health Center	9
Housing Opportunities	10
Northwest Indiana Regional Planning Commission (NIRPC).....	11
Pines Village Retirement Center.....	11
Porter County Community Aging Services	11
Ride Right.....	12
Valparaiso University International Students and Scholars Program	13
Valparaiso University Staff.....	14
Ivy Tech Campus Table Interviews	15
V-Line Driver Interviews	16
III. Passenger Survey and On/Off Counts.....	18
Passenger Survey and On/Off Count Methodology	18
Passenger Survey Results.....	19
V-Line Systemwide Passenger Survey Results Summary	19
Transportation Needs	19
Customer Satisfaction Ratings.....	19
Top 3 Ways for V-Line to Improve.....	20
English as a Second Language and Ethnicity.....	21



ChicaGo Dash	22
Dune Park South Shore Train Station Connections	22
V-Line Information and Outreach Materials.....	23
Passenger Demographics	24
Route Level Survey Summaries	26
Yellow Route	26
Green Route.....	31
Brown Route	35
Trip Purpose	35
Red Route	37
Orange Route	41
Purple Route	46
Trip Purpose	47
Summary of Passenger Survey Results.....	50
IV. Analysis of Performance	51
Methodology	51
Purpose.....	51
Results.....	51
Existing Services Overview.....	51
Weekday Boardings and Alightings	53
Weekend Boardings and Alightings.....	61
Productivity.....	69
On-Time Performance	74
Weekday Route Performance	74
Weekend Route Performance.....	75
IV. Transit Demand Analysis	77
Demographic Analysis	77
Population Density.....	77
Income.....	77



Age	77
V. Transit Propensity/Demand	85
VI. Peer System Review	87
Introduction	87
Methodology	87
Peer Summaries	94
Delaware Area Transit Agency (DATA) (Delaware County, OH)	94
Greene CATS (Xenia, OH)	94
Macatawa area express (MAX) (Holland, MI)	94
DeKalb-Sycamore Area Transportation Study (Voluntary Action Center (TransVAC)) (DeKalb County, IL)	95
Danville Mass Transit (DMT) (Danville, IL)	96
Fond Du Lac Area Transit (Fond Du Lac, WI)	96
ColumBUS (Columbus, IN)	96
Easy Rider (Parkersburg, WV)	96
Michigan City Transit (MCT) (Michigan City, IN)	97
West Bend Taxi Service (West Bend, WI)	97
Petersburg Area Transit (PAT) (Petersburg, VA)	97
Peer Group Summary	98
VII. V-Line Transit Service Analysis	99
Ridership and PProductivity	99
Historical Ridership for V-Line	99
V-Line Productivity	99
V-Line Performance/Cost Effectiveness	100
Vehicle Inventory	101
VIII. Transportation Improvement ALternatives	102
Alternative 1: Strengthening the Status Quo	102
A. Performance Measurement	102
B. Marketing and Passenger Information Materials	106



C. Distribution of Passes.....	109
Option 1:	110
Option 2:	110
D. Create a V-Line App	111
Alternative 2: Improve Regional Transportation Options.....	112
A. Coordinate with Intercity Bus Operators to Add a Stop near Valparaiso.....	112
B. Implement a Park-N-Ride and Shuttle to the ChicaGo Dash Valparaiso Village Station and Dune Park South Shore Train Station.....	114
B-1. ChicaGo Dash Park-N-Ride and Shuttle	114
B-2. Dune Park South Shore Train Station on Weekdays.....	115
Summary	118
Alternative 3: Route Structure Alternatives.....	118
A. Partnering with HealthLinc	118
B. Eliminate the Yellow Route Segment from Pointe Drive to Social Security Administration Office.....	119
C. Add A Route for Extra Service on Calumet & Laporte Avenues – “Blue Route”	122
D. Alternative Blue Route with Service on Route 30 – Three Days per Week.....	125
Summary	128
Alternative 4: Expand the Service and Scope of V-Line	128
A. Provide a Demand Response Service to the New Regional Hospital and Area Businesses, with Potential to Create a Route if Demand Warrants	128
B. Explore Opportunities to provide Coordinated Countywide Transportation.....	129
C. Extend Hours of Operation for the Yellow Route	130
C. Extend Hours of Operation for the Purple Route.....	131
Alternative 5: Implement Fixed Routes and ADA Paratransit Service	132
A. Fixed Route Service.....	132
B. ADA Paratransit Service.....	133
Summary	135

Introduction

I. INTRODUCTION

PURPOSE AND APPROACH

This document is the final report and consist of a compilation of technical memoranda presented throughout the V-Line Route Study.

The route study is sponsored by the City of Valparaiso and is intended to systematically review V-Line service and create practical recommendations for enhancing the already successful public transit service in Valparaiso. The final chapters of the report include major service feature recommendations as well as suggested route changes. Each recommended change is based on the input received through public outreach efforts, passenger surveys, and discussions with the project steering committee. The service recommendations have an implementation horizon of five, ten, and fifteen years. Recommendations include considerations for other planned development in downtown Valparaiso as well as projected growth and changes in the local population of the City and the County.

A complete outline of the tasks included in the Route Study is provided below.

Table 1: V-Line Route Study Task Overview	
Task Number	Task Description
1	Develop Detailed Scope of Work
2	Interviews and Inventory
3	Public Meetings
4	Surveys and Transit Demand Estimate
5	Route Alignment Profiles, Mapping, and Preliminary Recommendations
6	Major Service Feature Recommendations
7	Cost Analysis and Financial Plan
8	Final Report and Presentation

This document is draft and confidential. Information contained within is intended only for use by the authors, RLS & Associates, Inc. and the City of Valparaiso. If you are not the intended recipient, you are hereby notified that any disclosure, copying, or distribution is strictly prohibited without permission. Thank you.

Introduction

II. PUBLIC INPUT

The week of December 9, 2013 was dedicated to public outreach and stakeholder input regarding V-Line service in Valparaiso. The RLS team conducted several public meetings, focus groups, and one-on-one interviews to gather information from a broad range of perspectives throughout the community. Table 2 outlines the schedule of meetings and focus groups. All public meetings were advertised on vehicles, at apartment complexes, and in the local newspaper. The focus group meeting at The Masters Apartment Complex was advertised by a posting on at the community's mailboxes. The focus group for International students at Valparaiso University was advertised through email.

Table 2: V-Line Public Meetings and Focus Groups		
Organization	Date	Location
Valparaiso University International Student & Scholars	Monday, December 9, 2013 at 2:30 PM	Gandhi King Center at Harre Student Union
VU Student Transportation Open House	Monday, December 9, 2013 at 5:00 PM to 7:00 PM	Chapel View Lounge at Harre Student Union
The Masters Apartment Complex Residents	Wednesday, December 11, 2013 at 5:00 PM to 6:00 PM	The Masters Clubhouse
Public Meeting	Thursday, December 12, 2013 at 5:00 PM to 7:00 PM	City Hall
Ivy Tech	Friday, April 10, 2014 at 3:30-7:30 PM	Ivy Tech

PUBLIC AND FOCUS GROUP MEETING INPUT SUMMARY

Several constant themes became apparent through the focus groups and public meetings. For example, the transit service is very much appreciated by the passengers and stakeholders of Valparaiso. While there is always room for improvement, passengers and other community stakeholders value the quality and affordable public transportation service that is available. For people who do not drive, V-Line is their only transportation option for “everywhere” they need and want to go.

Other common themes discussed during the week revolved primarily around the need for more frequent buses (at least every 30-minutes), shorter ride time/less time on-board vehicles, improved on-time performance, improved marketing and informational materials including maps and schedules, driver training, bus shelters, and improved signage.

The following list of recommendations is arranged by topic. It was used to develop passenger and general public surveys which were distributed in January/February 2014. This public input feedback gathered at the onset of the project, along with survey results and other public input, was also used as a foundation for developing recommendations to enhance V-Line services.

Public Meeting and Focus Group Feedback:

◆ Service Information and Marketing

- People may be unaware of the South Shore connection. Improved advertising of the service is recommended.
- Limited English Proficiency (LEP):
 - The Flint Lake School has a significant Spanish speaking population that needs service to activities related to school. Many of these families may need V-Line information and schedules in Spanish because English is their second language.
 - Students with English as a second language (ESL) tend to like the website but request printed maps be translated.
 - There is an increasing population with limited English proficiency (LEP).
- Passengers need to have a better understanding of how the routes operate.
- Those who do not have smart phones have no way of tracking the buses or knowing if buses are running on schedule or late.
- Improved outreach and marketing for the international students at VU is needed.
- DoubleMap does not always work well and does not show all buses. Sometimes the app freezes up and does not work at all. Sometimes it shows “ghost” buses.
- V-Line should make more of an effort to reach out to the students to explain the service and how to use it. Outreach should go beyond the ‘Freshman Year.’
 - Brochures and posters should be placed in the student union near the entrances and in residential halls. The dorms have inadequate Internet service, so it is difficult to download info about the transit system, to access the timetables and to track the buses.
- Printed Materials:
 - It is difficult to understand the route structure and schedule based on printed materials and the website.
 - There is a need to simplify the routes. What does it mean that “Green turns into Purple” as an explanation for the later route?
 - Mobile time schedules by stops would be helpful.
 - Route maps should indicate direction and location of stops.
- Participants at the general public forum recommended that V-Line add a travel trainer/travel training program to teach people how to get around town.
- Service around JCPenney and Target is too confusing.
- Common resources for information about V-Line service include:
 - Bus drivers
 - Big sign in front of vehicle
 - Newspaper
 - Facebook – however, if people post comments, V-Line must respond
 - Website
 - Community postings (i.e., in shopping centers)
 - Postings on bus shelters
 - Postings at apartment complexes (i.e., in offices where people pay rent and also at mailboxes)
 - Passengers would like to use Bus Tracker – a system that would send a text about the bus.
 - Some passengers do not have smart phones and are unable to use DoubleMap.

◆ **Days, Hours, and Frequency of Service**

- Service on weekend nights would improve safety on the roads and could prevent vehicle accidents.
- Hours:
 - Later hours of operation in the evenings (as late as 10:00 PM) and earlier in the mornings are needed. Students want later hours for shopping and studying late at the library. The non-student passengers want later hours for shopping and work.
 - Later service on weekends is needed.
 - Orange Line should start earlier, especially on Fridays.
 - Later hours of service for those studying late at the VU library (open until 1:00 AM) are needed.
 - Later service to the movie theatre area has been requested.
 - Later Brown Line service is needed.
 - The Brown Line should start at 10:00 AM on weekends and weekdays.
 - Weekend service should start at 10:00 AM.
 - Serve Ivy Tech after 8:45 PM on weekdays.
 - Earlier morning service to South Shore.
 - Stop at Goodwill early (7:00 AM) to support employees.
 - Consider an Express Route serving the stores on Calumet and operating late at night.
- The meeting participants would like to have buses run in both directions on the routes.
- The meeting participants want to expand service, in general.
- Offer more service on Sundays:
 - Need bus service at Andover Apartments on Sundays.
 - Need bus service at Town and Country on Sundays.
 - Start service by 6:15 AM on Sundays.
 - Need to go to Grace Point on Sundays.
- Frequency:
 - Red, Yellow, and Orange Lines need higher frequency.
 - Routes and wait time between buses are too long (routes to Target, in particular).
 - Need to increase the frequency.
 - Routes should have 30-minute headways.
 - If passengers work, it is difficult to run errands on evenings and weekends because of the one-hour frequency. More frequent service would give them time to run errands.
 - One hour loops means that some passengers are riding up to 50-minutes for at least one leg of their round trip. For example, it may take 10 minutes to get to work, but 50 minutes to get home.
 - Need more frequent service on Orange Line on Friday and to connect better with the train.
- Red Line:
 - Need Red Line to run Monday through Friday.
- Yellow and Green Lines:
 - Should operate until 10:00 PM.
 - Should have at least 30-minute frequencies.
 - Green Line service on Sundays.

- o Consider a route northbound on Calumet to serve Town and Country, YMCA, and “Stracks.”

◆ **Service Area and Location of Stops**

- o Request expanded service to cover the entire town, including the BMV, Strack and Van Til, and the apartment complex behind Strack and Van Til.
- o Consider a route northbound on Calumet to serve Town and Country, YMCA, and “Stracks.”
- o Request for transportation connecting residents with the activities and events offered in Downtown Valparaiso (i.e., movies at the park, farmers market).
- o Regional Hospital and St. Mary’s Hospital:
 - Meeting participants would like to have a route to the regional hospital and St. Mary’s Hospital. They would use it as patients and also to visit family members and friends who are being treated at the hospital.
 - Patients at the Regional hospital often have no affordable ride home after being released. Public transit is desired. A route service would be acceptable.
 - Demand Response or on-demand transportation would be a nice alternative if the fixed route service was not available from the hospital at the time or on the day when the person is released.
- o Location of Stops:
 - Add a stop across the street from Town and Country.
 - Add a stop at College and Union.
 - Create a stop at Flint Lake School.
 - Suggest discontinuing the stop at Ivy Tech on weekends because no classes are offered and the stop makes the route longer.
 - Routes should go to religious institutions.
 - Add a stop at least one day per week at the BMV. Other businesses near the BMV would also benefit.
 - Add a stop at College Apartments.
 - Add a stop at Sherwood Forest on weekends.
- o Add service to the Banta Activity Center (VU students volunteer there).
- o Integrate a new after school route with the Purple Route.
- o Passengers would like for new stops to be created where the new apartment complexes have been built.
- o Passengers request service expansion in the area West of Route 30.
- o Add a route to the Mosque and to other religious institutions on their respective days of worship. It was suggested that V-Line approach the local religious institutions to request funding to help support this aspect of the service expansion.
- o The Purple Line (demo) is good.
- o Need to have clockwise and counterclockwise buses to make it easier to use the loops.
- o Need better service on Sturdy Drive.
- o Wanted to go to bowling alley any day and night.
- o Implement a bi-directional route on Lincolnway, so that passengers can avoid traveling North on the Yellow Line.
- o Porter County Aging Community Services transportation should be expanded to residents of all ages.
- o Red Line:
 - Add it to the Heart Center transfer point on weekdays.
 - Run it more days per week.

- Market it. People are not aware of the route or its schedule.
- o Green and Brown Lines:
 - These lines are on a tight schedule and run late if there are deviations or wheelchairs to load.
- o Green and Yellow Lines:
 - These lines are overcrowded during the afternoon/mid-day.
 - Green Line should serve Target more frequently.
 - Look at revising the Yellow Line routing around the Social Security Administration office.
 - Connect the Yellow Line with the Chicago DASH in the morning.
 - Return to the extended hours of operation.
- o Purple Lines:
 - Run into the Target parking lot and on Calumet/Morgan.
 - Stop at Walgreens on Calumet.
- o Target:
 - More frequent service to Target.
 - Pull into Target's lot similar to how Walmart is served.

◆ **Regional Connections**

- o Service should include a route to the Porter Regional Hospital.
- o The public requests daily service to the South Shore.
- o Service to Portage to get the intercity bus to the Chicago airport.
- o More service to the train on weekends, and not just holidays, so can easily go home out of town.
- o Go to Dune Park, to connect to train to Chicago/airport.
- o Go to the South Lake Mall in Hobart on the weekends and go other places, too.
- o More connections to the train during the week, especially in the afternoons.
- o Purple Line to Portage so can take transit to O'Hare, during school breaks.
- o Chicago DASH buses should start earlier and run later.
- o Weekend service to Merrillville is requested.
- o Additional options for returning from the South Shore train station to home in Valparaiso.
- o Sync bus times with the train arrival times to reduce passenger wait times.
- o Connect V-Line with Chicago DASH on Saturdays.
- o Add a bus leaving the loop later for Chicago.
- o Access to a shuttle bus to O'Hare in the morning or middle of the day.
- o A route to Portage for the IMAX theatre on weekends.

◆ **Customer Service, Amenities, and Vehicles**

- o Consider running bigger buses. Small, overcrowded buses could be creating conflicts between the passengers because everyone sits so close together. Passengers who want to just sit quietly and ride are unable to do so if other passengers are socializing.
- o Drivers sometimes deviate for select passengers, even when a deviation is not requested.
- o Drivers need a salary increase.
- o A bus shelter is needed at the following places:
 - HealthLinc
 - The Heart Center transfer point
 - Vale Park Road Apartments

- Target
 - Library
 - Campbell & Chicago
 - Chester's Chicken
- o There are some stops which are not wheelchair accessible. The City has been working to make stops more accessible, but some still have curbs.
- o The Green Route runs late most often of all routes. On-time performance must be improved.
- o When snowplows run, they create berms on the roads, which make it difficult for passengers to safely wait for and board the bus.
- o The public perceives that V-Line buses are always running late.
- o Clearer, more easy-to-read bus stop signs.
- o A student stated that she, as a female, is concerned about safety on the bus.
- o It is too cold on board vehicles.
- o Ride-time on vehicles is too long.
- o International student has experienced rudeness and curtness and impatience when he calls dispatch with questions about service. He assumed it was because he was Chinese.
- o Stops not easily noticed.
- o Buses need to be on-time. Passengers perceive that buses are running late because of deviations.
- o Need bigger buses around break times because they fill up quickly and are overcrowded.
- o Overcrowding of buses is an issue.
- o Signs:
 - People need to know where to wait for a bus. If some signs are not being used, they should be removed.
 - Color coded signs would be helpful so that people know which routes serve the stop.
 - Analysis should be done to determine where people actually stand to wait for the bus and the sign should be relocated as appropriate.
 - The sign at Golden Living is in a dangerous location because of the round-a-bout traffic.
 - The sign at Menards blocks traffic.
 - Add a sign at Lincolnway and Napoleon on the South side of the road.
- o Some passengers are experiencing drivers with poor customer courtesy skills.
- o Drivers need refresher training on proper wheelchair securement for a variety of wheelchairs. One driver, reportedly, is not properly securing a wheelchair.
- o Passengers should be able to know if a deviation is scheduled so that they can plan to be delayed in reaching their destination.

STAKEHOLDER INTERVIEW SUMMARIES

A list of one-on-one interviews that were conducted for the purpose of gathering perspectives and inventory information about the status of transportation in Valparaiso and the surrounding area, as well as future goals and plans for the area is provided in Table 3. The City of Valparaiso extended individual invitations to interview participants. A summary of interview results is provided below.

Table 3: V-Line Stakeholder Interviews	
Organization	Point of Contact
City of Valparaiso	City Administrator
City of Valparaiso	Mayor
City of Valparaiso	Planning Staff, Clerks
City Council	Mr. Jan Dick, Councilman at-Large
Covington Square Apartments	Ms. Roberta Conkle, Property Manager
HealthLinc	Ms. Beth Wrobel
Housing Opportunities	Ms. Alora Johnson, Coordinator
NIRPC	Ms. Belinda Petroski
Pines Village Retirement Communities	Reception
Porter County Community Aging Services	Mr. Bruce Linder
Ride Right	Manager, Dispatcher, Drivers
Valparaiso University International Students & Scholars Programs	Mr. Moninder “Holly” Singh, Director of Int’l Students and Scholars Programs
Valparaiso University Staff	Ms. Susan Scroggins, VP for Administration

City of Valparaiso

City of Valparaiso elected officials and the City Administrator agree that the V-Line service is helping to make Valparaiso a healthier community, and provides an opportunity for partnerships between the City and other local community stakeholders, such as Valparaiso University and others. The service that is provided empowers people to be active in the community by offering an affordable alternative to the personal automobile.

While it is acknowledged that V-Line cannot meet all needs for every person, the City is aware that gaps and unmet needs with the transportation service do exist and plans to address them must be prepared and prioritized. One example is the gap in transportation that was created when Porter Hospital relocated outside of the V-Line service area. The City receives reports of patients getting stranded at the hospital after they are released, and would-be visitors who do not have transportation to visit family and friends who are patients. The City would like to explore the possibilities/risks of extending service to Porter Hospital and St. Mary’s Hospital. The City would also like to explore the potential and need for public transportation service to the industrial area South of Route 30 as well as access to community events and resources throughout the central parts of Valparaiso. Finally, the City would like for the V-Line study to include recommendations that will

assist with designing service to support future land use and economic developments in and around the downtown area.

City Clerks sell V-Line Passes and Tokens at City Hall. They also receive applications for reduced fares and create/renew ID Cards for individuals who have an approved reduced fare (senior or disabled). Passengers who are seeking a reduced fare must complete an annual application that is signed by a medical doctor. The Planning Office reviews and approves applications. Upon approval, the applicant must come to the Clerk's Office in City Hall to obtain an ID card (or ID card renewal). All ID Cards are renewed on August 1.

Monthly passes are created by the Planning Office; each month has a new set of passes and new design and passes are numbered. The Planning Office prints passes and provides them to the Clerk's Office where the Clerks keep a written log of the passes that are sold. The office sells an average of 53.5 passes per month.

The Clerk's Office reported that it is inconvenient for passengers to ride V-Line to City Hall and buy a pass because the passenger must wait for one hour for the next bus to pick them up. Passengers often request more frequent service. The Clerk's Office also suggested additional locations for selling passes, such as the V-Line office.

Covington Square Apartments

Covington Square Apartments includes 152 units. Rent is at market rate, not income-based. Covington Square is home to more students than not. International students, in particular, are a growing population at the complex. In an effort to find economical living, International students tend to share apartments. For example, four students may share a two bedroom apartment. In addition to students, there are a few seniors and families with children. Most apartments have at least one personal automobile.

The Property Manager at Covington Square Apartments participated in an interview to discuss access to transportation for Covington Square residents. She indicated that most residents who ride V-Line use the nearby Lincolnway stop which does not have a shelter.

The Property Manager suggested that residents who ride V-Line tend to be going downtown, grocery stores, the University, or medical appointments. To encourage student ridership, she suggested implementing an Express Route to the University with a transfer point on the North side of Valparaiso.

HealthLinc Community Health Center

HealthLinc is a Federally subsidized not-for-profit organization. It began as Hilltop Community Health Center, which was part of the Hilltop Neighborhood House in Valparaiso. Hilltop Neighborhood House was created to serve a growing population of low-income and unemployed residents in Porter County. The Health Center recently relocated to a facility with more space for patient services.

HealthLinc services include primary and preventative care services; health and wellness education; chronic disease management; prenatal care; women's health services; men's health services; wellness checks and immunizations; services to treat depression, anxiety, and many other behavioral health conditions and disorders; comprehensive dental services, pharmacy services; and optometry services.

HealthLinc subsidizes the out-of-pocket cost to the patient to help them get a ride home from the clinic. With the population of families and individuals with low incomes in flux, there is a growing need for affordable transportation that ranges from purchasing a personal automobile, to taxi and bus service. Transportation is the primary barrier to the care that HealthLinc provides.

As reported by the Healthlinc representative, patients are sometimes unaware of the deviated routes and service area, or they do not use the V-Line because there is no shelter to wait for the bus. Some suggested improvements for V-Line include the following:

- ◆ A bus shelter is needed at HealthLinc. Patients with disabilities and families with young children use the bus service from HealthLinc and they wait in inclement weather for the bus to arrive. Many of the HealthLinc patients have low incomes.
- ◆ Improved advertising of the deviated route should be directed at informing people about the option to deviate when they are unable to walk to a bus stop.
- ◆ Service on weekend nights would improve safety on the roads by giving people an option other than driving or walking.
- ◆ People may be unaware of the South Shore connection. Improved advertising of the service is recommended.
- ◆ Integrate an after school route with the Purple Route.
- ◆ Create a stop at Flint Lake School. The school has a significant Spanish speaking population that needs service to activities related to school. Many of these families may need V-Line information and schedules in Spanish because English is their second language.

Housing Opportunities

Housing Opportunities is a non-profit organization that provides temporary housing for homeless and low income renters. Most renters live at Housing Opportunities for 30 days, but they can extend their lease for up to 120 days. There are 28 units available at the location on Calumet Avenue. Currently, there are 30 families residing at the Calumet Avenue location. Throughout Valparaiso, Housing Opportunities is serving 128 families. While some Calumet Avenue residents have access to a personal automobile, most rely on public transit. Residents tend to need transportation most often for medical appointments and stores. Residents would also benefit from service to Route 30 medical offices, shops, and employers.

There is a shelter located at Housing Opportunities. The agency's staff cleans trash from the shelter on a regular basis.

Housing Opportunities would like to have V-Line schedules/maps available in the office for distribution to new and existing residents.

Northwest Indiana Regional Planning Commission (NIRPC)

NIRPC is a regional council of local governments serving the citizens of Lake, Porter, and LaPorte counties. NIRPC provides a forum that addresses regional issues relating to transportation, the environment and community, and economic development. NIRPC is the direct recipient of Federal Transit Administration (FTA) Section 5307 funding which is distributed among seven public transit providers in the area based on a competitive grant process. NIRPC applies for and receives funds on behalf of East Chicago Public Transit, North Township Dial-A-Ride, South Lake County Community Services, Opportunity Enterprises, Porter County Aging and Community Services, City of Valparaiso V-Line and DASH, and City of LaPorte TransPorte. Three of the seven (FTA) funded providers serve Porter County and Valparaiso.

Use of these Federal funds requires the development of a long-range plan, with priorities and criteria to select projects based on the plan's recommendations. This long-range plan is a five-year Transportation Improvement Program (TIP). Use of the FTA funds also requires the involvement of users and operators of public and private transit services in planning for public transportation.

NIRPC recognizes a need for transportation to Porter Regional Hospital from Valparaiso. NIRPC would like to see V-Line offer, at minimum, a service to support hospital employees. In return, local match for transportation to/from the hospital should be, at least in part, provided by Porter County and/or Porter Hospital.

Pines Village Retirement Center

Pines Village Retirement Center in Valparaiso participated in a one-on-one telephone interview for the study. The center has 160 residents who are age 62 and older.

The center operates one wheelchair accessible 20-passenger bus on an hourly schedule. The bus leaves at the top of each hour to take residents wherever they request to go in the local area. Passengers are picked up when they call for a return trip. Service is available Monday through Friday between 8:00 AM and 5:00 PM. If a resident wants transportation out of the region, advance reservations are required.

The most significant challenge for resident transportation is demand for trips to and from Porter Regional Hospital. It is difficult for the center to meet the increasing demand with its vehicle.

Porter County Community Aging Services

Porter County Community Aging Services provides door-to-door, demand response transportation services throughout Porter County and about three miles into Lake County (to include service to the hospital). Services require an advance reservation. The system requests 48-hours advance reservation, but encourages passengers to call as soon as possible to schedule a trip.

Porter County Community Aging Services transportation is funded with Federal Transit Administration (FTA) Section 5307 public transit dollars and local match is provided by Porter County Commissioners, and Indiana Public Mass Transportation Fund (PMTF). There is no passenger fare for older adults and individuals with disabilities, but a \$1.00 donation is suggested. Individuals with disabilities, older adults, and individuals with low incomes receive priority when scheduling trips.

The system provided approximately 23,000 one-way trips during the past year (248 operating days). There are approximately 350 registered passengers; about 200 people ride regularly. Approximately 60 percent of annual trips are subscription trips (i.e., trips that occur at the same time and on the same day each week). The demand from within the City of Valparaiso is approximately equal to demand from Porter County residents, according to the General Manager.

At the time of the interview (Winter 2013/14) the system operated a fleet of 11 wheelchair accessible vehicles. Vehicles are parked overnight at the Porter County Community Aging Services office building in Valparaiso. The system would like to park the vehicles in a different, more secure location. There are ten full-time drivers and one full-time dispatcher on staff. Two of the drivers also function as part time dispatchers. All drivers have a Commercial Driver's License (CDL).

The system utilizes Route Match scheduling software, but not to schedule trips. Trips are scheduled manually by the dispatcher(s). The system hopes to have tablets on vehicles soon.

The General Manager indicated that dispatchers encourage people who can use V-Line to ride the V-Line routes. Currently, the demand for Porter County Community Aging Services transportation exceeds the system's capacity. There are not enough vehicles to meet demand, however, the system does not hear a lot of complaints.

Common destinations for the system are as follows:

- ◆ Medical Center on Roosevelt
- ◆ St. Agnes Day Care
- ◆ Porter Starke Services
- ◆ Porter Hospital (daily trips)
- ◆ Various Dialysis Centers
- ◆ Target (and surrounding stores)
- ◆ Various Doctor Offices
- ◆ St. Mary's Hospital (not as often as Porter Hospital)

Ride Right

Ride Right operates the V-Line public transit service through a contract with the City of Valparaiso. During an interview, the Ride Right Valparaiso General Manager and Dispatcher shared comments that he often receives from passengers. Those comments are listed in the following points:

- ◆ Currently, buses operate on one-hour headways. The passengers would like to reduce headways to at least thirty-minutes. Passengers would like to double the number of buses on the routes.
- ◆ Passengers would like more bus shelters.
- ◆ Passengers need to have a better understanding of how the routes operate. People who do not have smart phones have no way of tracking the buses or knowing if buses are running on schedule or late.
- ◆ Passengers would like for service to include a route to the Porter Regional Hospital.
- ◆ Passengers would like for new stops to be created where the new apartment complexes have been built.
- ◆ There are some stops which are not wheelchair accessible. The City has been working to make stops more accessible, but some still have curbs.
- ◆ The Green Route runs late most often of all routes.
- ◆ The current hours of service are sufficient, but passengers often request later service in the evenings and earlier in the mornings.
- ◆ The public would like to see buses run in both directions on the routes.
- ◆ When snowplows run, they create berms on the roads, which make it difficult for passengers to safely wait for and board the bus.
- ◆ The public wants to expand service.
- ◆ The public perceives that V-Line buses are always running late.
- ◆ The public requests more service on Sundays.
- ◆ The public requests daily service to the South Shore.
- ◆ Students with English as a second language (ESL) request maps that are translated. There is an increasing population with limited English proficiency (LEP).

Valparaiso University International Students and Scholars Program

Valparaiso University (VU) has a growing and developing International Students and Scholars Program. There are currently over 600 International students enrolled at VU. The goal enrollment for the near future is 1,000 students.

Many International students do not have a car when they arrive and most do not drive while they are enrolled at VU. Therefore, the students rely upon V-Line and their friends for transportation. Increasing numbers of students in the International Program live off-campus and share apartments in Valparaiso. This pattern is creating new demand on the V-Line routes serving the University and residential areas throughout the City.

The VU International Students and Scholars Program Director discussed a list of potential transportation needs for his students. The list is provided below.

- ◆ Vehicles serving the residential areas and the University are becoming overcrowded. Students have common class schedules, so they are traveling together. In some cases, multiple vehicles may be needed on the V-Line routes to accommodate the demand.
- ◆ Students need to use V-Line to go grocery shopping. Bigger shopping trips are needed at the beginning of each term, especially the beginning of the school year (fall).

- ◆ International students need to travel regionally on holidays and weekends as well as during the school year (for projects and internships). They need access to NICTD, the bus from Merrillville to O'Hare Airport, and the Chicago DASH. Providing regional access will mean students can have the option to stay in Valparaiso during holidays and between class sessions instead of leaving the area for an internship in another state.
- ◆ International students have the option to stay in the United States on their student Visa Passport for 12 months after graduation. If public transit in Valparaiso serves their needs, more students could stay in the local area.
- ◆ Currently, the program will rent cars or use personal vehicles of VU staff to pick up students at O'Hare when they arrive in the country for the first time. A more cost effective option, such as public transit, would be preferred.

Valparaiso University Staff

Valparaiso University (VU) has a student enrollment of 4,500 students. Enrollment is likely to increase to 5,000 students in fall of 2014. It is estimated that 15 to 20 percent of students commute from within a 50-mile radius of campus. On-campus housing is available for up to 2,400 students. The University anticipates that students who choose to live off campus will continue to live in the apartments available on the north side of town. Furthermore, VU staff expects that demand for V-Line will continue to grow as the Senior Class size continues to grow and as housing on the north side of town remains affordable. Staff also expects to offer additional classes during the late evening hours. This would mean that students will need transportation after classes as late as 9:45PM to 10:00 PM.

Currently, the Valparaiso University (VU) staff believes that students use the following options for mobility:

- ◆ Walk
- ◆ Bike
- ◆ Ride with friends
- ◆ Automobile (except for first year students who are not permitted to have a car)
- ◆ V-Line
- ◆ Campus Transportation
- ◆ Zip cars (two cars on campus)

The campus transportation system has been in operation for 17 years. It operates two vans between 6:00 PM and 2:00 AM throughout the academic year. The vans have capacity for up to 12 passengers each. One of the vehicles is equipped with a ramp for accessibility. The wheelchair accessible vehicle is old and in poor condition. Service is not operated during school breaks. All students are eligible to use the transportation service. The service area includes campus and the surrounding apartment complexes. The purpose of the program is to improve student safety. Trips are scheduled and dispatched from the Library. Service is advertised on the VU website and during the admission focus session. Rides are free for students.

The campus transportation program has a lot of demand for the on-campus medical center. It also has strong demand for trips home from Porter Hospital.

To encourage students to utilize V-Line services, the university offers a travel training session for freshman during the initial weeks of the school year. Judging from the increase in ridership on V-Line, it is likely that the travel training program is effective.

Ivy Tech Campus Table Interviews

On April 10, 2014, Ivy Tech students were invited to provide input into their satisfaction with V-Line service and areas where improvements are recommended. The following points were offered by the students who stopped to discuss V-Line service.

- ◆ Night classes get out later than the last bus route going north. If the bus made the last round at 9:30 PM, students in the night classes could ride V-Line home.
- ◆ Students need to have service up to the south shore during the week.
- ◆ Buses would be easier to use if frequency was increased.
- ◆ Students need to get to the License Bureau but there is no bus service.
- ◆ There is no bus service out Roosevelt or Lafayette. This is an issue for older adults.
- ◆ There is no service for TJ Middle School.
- ◆ Provide service farther north than currently exists.
- ◆ V-Line should serve the Williamsburg Manor trailer park.
- ◆ The Yellow Route at Chesterfield, Lincolnway and Campbell frequently is late.
- ◆ Students would like to have a weekend route up to the Indiana Dunes (for recreation).
- ◆ Recommend extending the Purple Route to Rogers Lakewood Park.
- ◆ Valparaiso needs service early on Sunday mornings.
- ◆ V-Line should offer a change machine on the buses for passengers that do not have exact change.
- ◆ The mobile app is accurate but sometimes there are glitches.
- ◆ V-Line should have shorter headways.
- ◆ Transferring on the bus is inconvenient.
- ◆ The bus schedules do not match actual performance.
- ◆ Service is needed on Roosevelt and Evans.
- ◆ Students would like to be able to purchase monthly passes at Ivy Tech.
- ◆ Recommendation to offer a late-night service to improve safety.
- ◆ Offer service to Crown Point and Merrillville.
- ◆ Offer a connection between the Gary Bus system between Merrillville and Valparaiso.
- ◆ Provide service to Porter.
- ◆ Go to St. Paul church. This church has food, clothes, and services for low-income citizens.
- ◆ V-Line should offer shorter headways. Thirty-minute headways are preferred.
- ◆ Improve reliability of on time service.

Additional Observations

Generally, students expressed concern that V-Line should coordinate route schedules with class schedules at Ivy Tech. This is particularly a problem for the evening classes that end at 9:30, which is later than the last V-Line bus route.

Several students stated that they have a car, and therefore do not ride V-Line. Several students (approximately 32) also said that they live in another town and riding V-Line is not an option. Living outside of the V-Line service area was the most common response to the question of why students do not use V-Line. Since Ivy Tech is a commuter college most people feel they have no use for the V-Line since they have to drive to school anyway. It is possible that students would use V-Line to go downtown at lunchtime, if such a service were promoted. Finally, it is noted that there were no bus schedules or brochures for V-Line in the Ivy Tech lobby.

V-Line Driver Interviews

V-Line employees are extremely familiar with the unmet needs and preferences of passengers. Drivers and dispatchers were given an opportunity to provide input into the route study through one-on-one interviews. Three drivers provided input. A summary of their feedback is provided in the following points.

- ◆ Drivers recommend increasing service on Sundays around the entire service area.
- ◆ There is a stretch of Roosevelt from Glendale to Lincolnway that is not served. However, there are a lot of businesses and people along that stretch. It was recommended to build this stretch into the Yellow Route schedule.
- ◆ The amount of buses and the size of buses is adequate to meet current demand, according to the drivers. However, if more buses were added to the fleet, it would improve the condition of the vehicles (allowing for rotation).
- ◆ Driver suggest shorter headways on the Green and Yellow Routes (30 minutes). Improve headways by putting two buses on these routes.
- ◆ Eliminate the Purple Route on Saturday night and put it on Sunday to expand Sunday service.
- ◆ Add stops to the Purple and Yellow Routes to make use of the extra time that is built into the schedule.
- ◆ The Brown Route schedule is very tight and cannot be done on schedule.
- ◆ There is no time for restroom built into the Brown Route schedule.
- ◆ When students wait inside at the Student Union, they walk slowly to board the vehicle. This process makes the Brown Route bus run behind schedule.
- ◆ The least used stop on the Brown Route is Ivy Tech. It could be eliminated or served every other hour.
- ◆ The Brown Route does not have time for deviations in the schedule; consider using a separate vehicle for deviations.
- ◆ Drivers would like to have training on how to interact with the very high-tech wheelchairs.
- ◆ Drivers need to have increased safety measures (safety from passengers).
- ◆ Some drivers smoke outside of their vehicles during breaks. Other drivers report that this is a bad image for V-Line.
- ◆ Concerns about moving the transfer point to Valplayso Park because of the high volume of children who play there during the summer.
- ◆ V-Line should enforce procedures and rules about where drivers stop to pick-up and drop-off passengers. There are inconsistencies between drivers.
- ◆ Suggestion of adding a route supervisor to assist with and observe service.
- ◆ Driver of Green Route reported an average of five deviations per an eight hour shift. Reports that passengers who appear to be able to ride the route service are requesting deviations.
- ◆ Suggestion to place two buses on the Yellow and Green Routes to increase frequency.

- ◆ Suggestion to use a dedicated vehicle for paratransit service in place of deviations.
- ◆ Change the name on the vehicles to “Valparaiso Public Transportation System” because the name (V-Line is confusing and people do not know that it is public transportation.
- ◆ Riders are confused about where stops are located and when vehicles are scheduled to arrive. Sign placement is an issue. There is a lack of uniformity to where signs are placed; they can be on multiple surfaces and far off the road.
- ◆ V-Line should purchase more vehicles because the increased ridership is wearing down the breaks and replacements are needed more frequently than normal.
- ◆ The town is too small for the big transit buses. Instead, there should be multiple buses on each route. More buses would spread out the burden on the vehicles.
- ◆ Suggest offering the same schedule seven days per week and not reduced service on weekends.

Surveys & Counts

III. PASSENGER SURVEY AND ON/OFF COUNTS

PASSENGER SURVEY AND ON/OFF COUNT METHODOLOGY

The passenger survey and on/off counts were conducted simultaneously during the week of February 9-16, 2014. Additional surveys were collected April 10-12 2014 to supplement gaps in survey feedback for the Red, Orange, Brown, and Green Routes. A team of surveyors from Valparaiso University was trained by the on-site survey manager to collect surveys from passengers as they boarded the vehicles. The surveyors were also trained to count passengers as they boarded and exited the vehicles at each stop on each route. The survey team surveyed all routes and all times of the day with a few exceptions on Friday evening and Saturday.

Surveyors wore badges to identify them as Official V-Line Surveyors. They were provided with trip log sheets with the bus stops and scheduled for the trips that they were covering. Surveyors tracked the number of passengers boarding and exiting the vehicle at each stop on each run.

The survey instrument was developed with input from the City of Valparaiso. It included questions about passenger demographics as well as trip origins and destinations, and the level of satisfaction with existing V-Line services. The data not only provides insight into customer service trends, but also offers the necessary data measurement of service to minority and low-income populations and ensure compliance with Title VI of the Civil Rights Act of 1964 and Executive Order: EO 12898 for addressing environmental justice.

At the onset of the survey planning stage, the survey sampling plan had a goal confidence interval of 7.5 percent with a 90 percent confidence level Z score. The goals were based on an average daily ridership for each route. The average was calculated from actual annual daily ridership counts.

The daily ridership was then divided by two based on the fact that each unique rider should complete only one survey and the assumption that most riders make two one-way trips per day (or one round trip) on V-Line. The following breakdown illustrates the number of completed surveys necessary to achieve the sampling plan goal. As depicted, the minimum goal for each route was significantly exceeded which enables the team to provide a statistically valid route level analysis.

Table 4: Passenger Survey Collection Goals and Results

Route Name	Statistically Valid Goal for Surveys	Number of Surveys Collected
Yellow	53	92
Green	51	110
Brown	13	157
Orange	3	46
Red	14	21
Purple	2	15
Total	136	441

PASSENGER SURVEY RESULTS

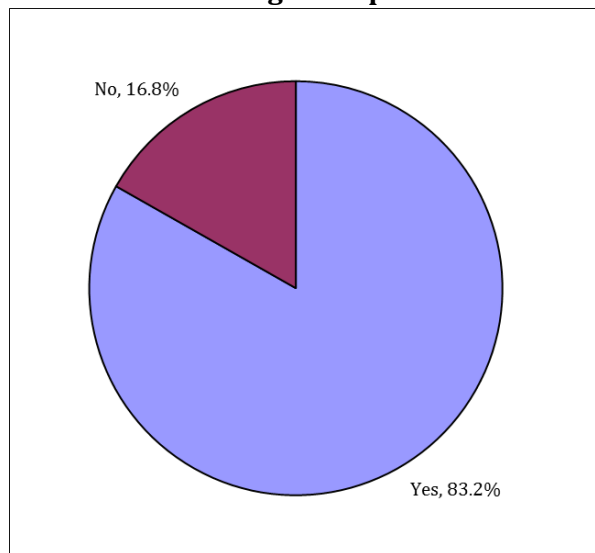
The following paragraphs and charts illustrate the overall, systemwide, survey results. Subsequent sections in this chapter provide results by route. Appendix A provides a summary of survey results from the general public passengers and the sub-set of those passengers who are students.

V-Line Systemwide Passenger Survey Results Summary

Transportation Needs

Eighty-three percent of V-Line passenger survey respondents indicated that V-Line meets their transportation needs.

Exhibit 1: Meeting Transportation Needs



The most frequently indicated reasons why V-Line does not meet transportation needs of the survey respondents were as follows:

- ◆ Buses running late too often
- ◆ Buses should begin runs earlier in the morning and operate later in the evenings
- ◆ Buses should come more frequently
- ◆ Connections to the DASH, the Train, and other locations outside of city limits are needed

Customer Satisfaction Ratings

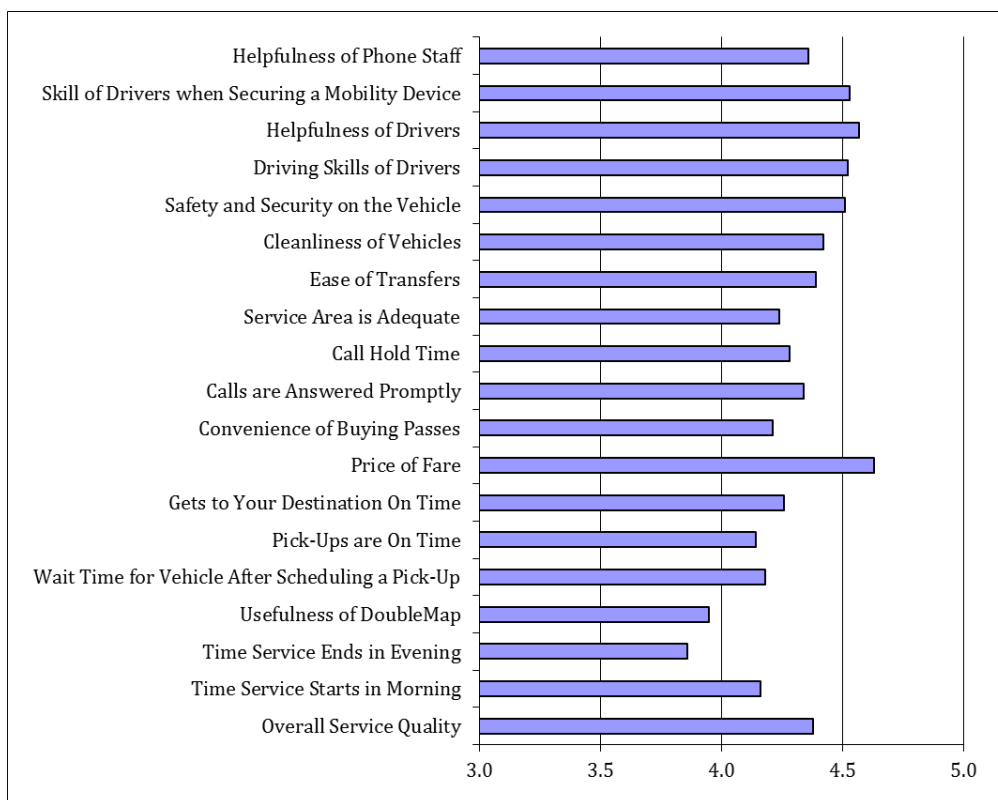
Passengers were asked to rate their satisfaction with V-Line in 19 service categories. Overall, customers were very satisfied with the service. The chart in Exhibit 2 illustrates the average ratings in each category. On a scale of 1 to 5 (with 5 being the highest), V-Line passengers rated the service at 4 or higher in 17 of the 19 categories. Drivers are to be commended for their strong performance.

The service characteristics with the highest average rating score were as follows:

- ◆ Price of Fare
- ◆ Helpfulness of Drivers
- ◆ Skill of Drivers when Securing a Mobility Device
- ◆ Driving Skill of Drivers
- ◆ Safety and Security on the Vehicle

The time V-Line service ends in the evenings and the usefulness of the DoubleMap application received the lowest average ratings, falling below an average score of 4.0. On-time performance; the start time for service in the mornings; convenience of buying passes; and service area also received lower ratings.

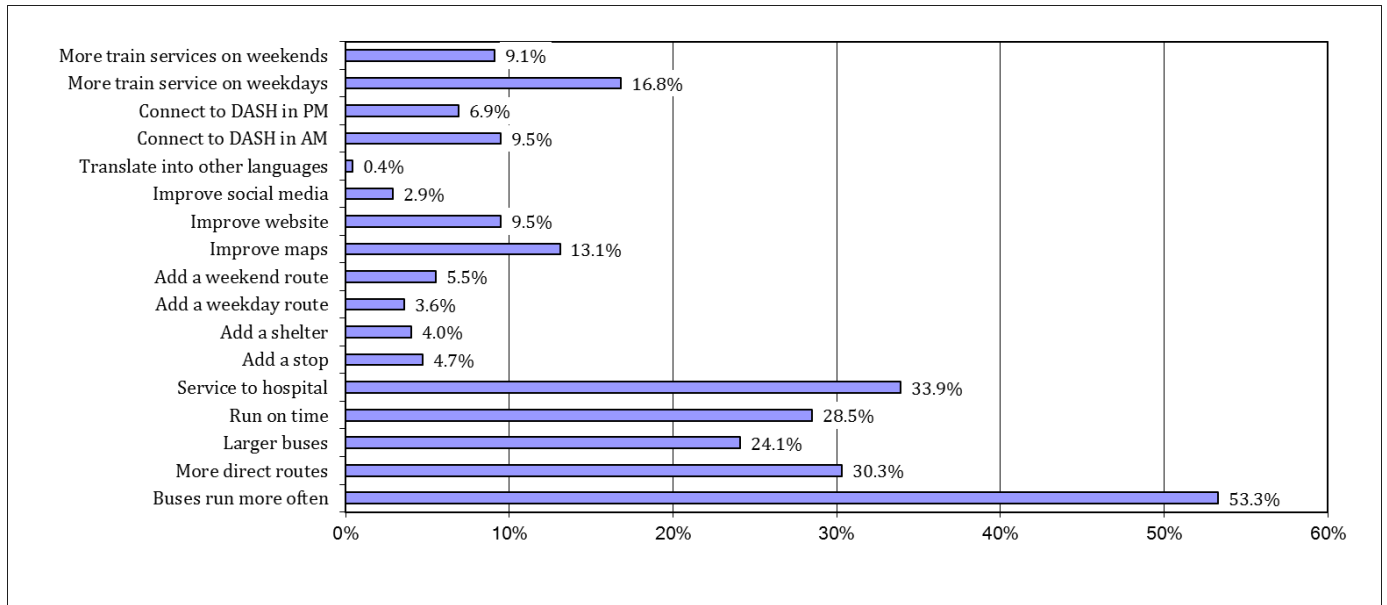
Exhibit 2: Systemwide Average Customer Satisfaction Ratings



Top 3 Ways for V-Line to Improve

According to an average of 292 passenger survey results, more than half (53.7 percent) of passengers would like for the V-Line buses to run more often. Approximately one-third (31.4 percent) of passengers would also like V-Line buses to run to the hospital. And, thirty percent of passengers would like more direct routes. These were the top three improvements needed, but buses running on-time and larger buses in the V-Line fleet were also important, receiving more than 20 percent of the votes.

Exhibit 3: Systemwide Average Top Three Suggested Improvements

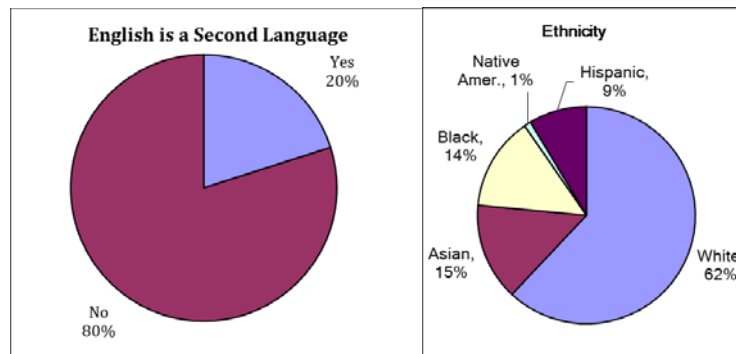


English as a Second Language and Ethnicity

Less than one percent of passengers indicated that translating V-Line information into other languages was a top priority. However, 20 percent of the survey respondents indicated that English is their second language. The ability to primarily rely on materials printed in English is most likely due to the education level of many Valparaiso University International students who speak English before they enroll in the program. Nonetheless, V-Line serves some students and non-students who may have difficulty reading information printed in English.

Nine percent of survey respondents were Hispanic and 15 percent were Asian. Based on survey results, it could be assumed that Spanish and Asian languages are the most common primary languages of riders who speak English as a second language.

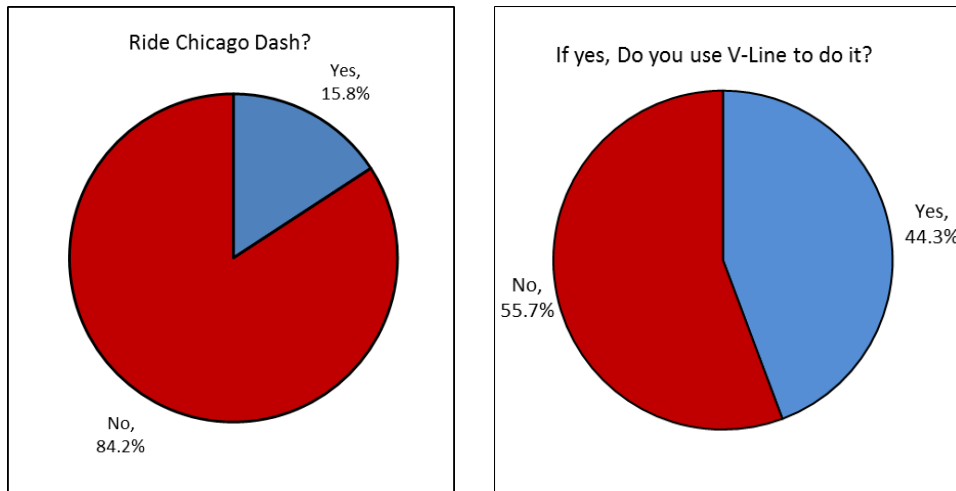
Exhibit 4: English as a Second Language and Ethnicity



ChicaGo Dash

A minority, 15.8 percent, of V-Line passenger survey respondents also ride the ChicaGo Dash. Of those ChicaGo Dash passengers, 44.3 percent use V-Line to connect with ChicaGo Dash. The V-Line routes are not always timed to meet the ChicaGo Dash bus schedule, which is most likely the reason why V-Line passengers do not use the local bus service to connect with the ChicaGo Dash commuter bus routes.

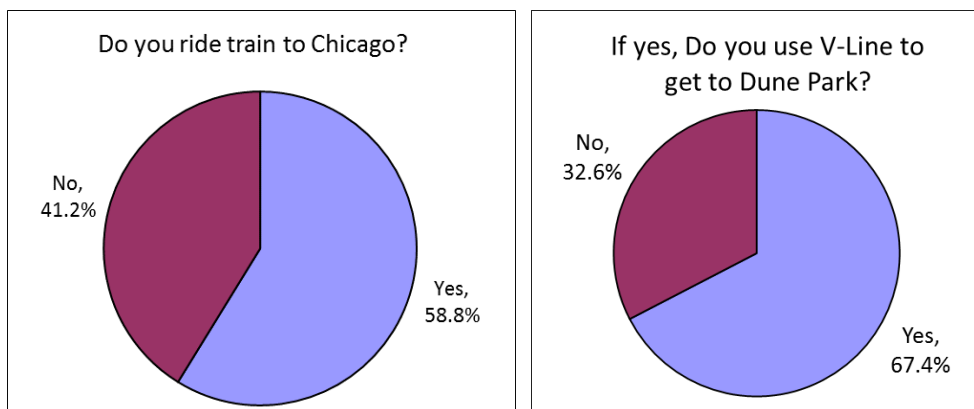
Exhibit 5: ChicaGo Dash Riders



Dune Park South Shore Train Station Connections

More than half of V-Line passenger survey respondents indicated that they use the NICTD train to go to Chicago. And, 67 percent of those passengers ride V-Line to the Dune Park South Shore Train Station to make their connection to the commuter train.

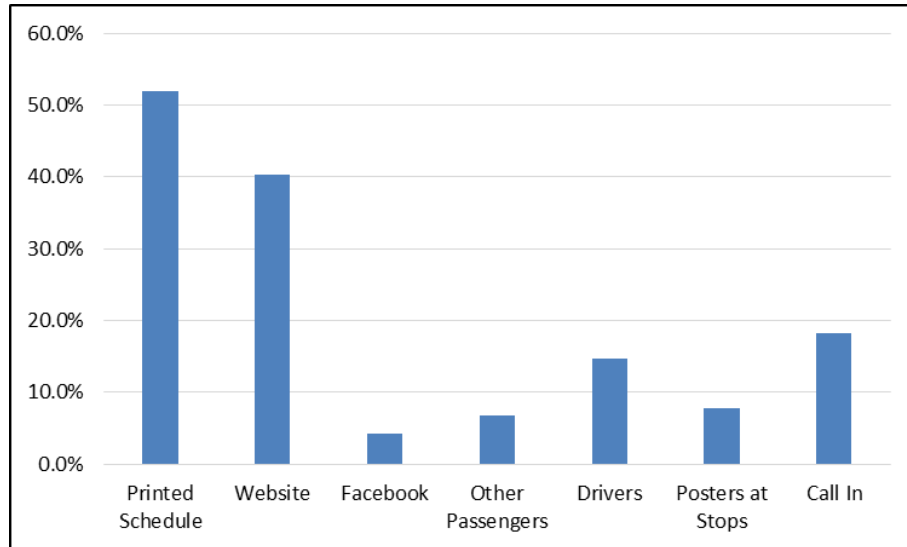
Exhibit 6: Dune Park Train Station Connections



V-Line Information and Outreach Materials

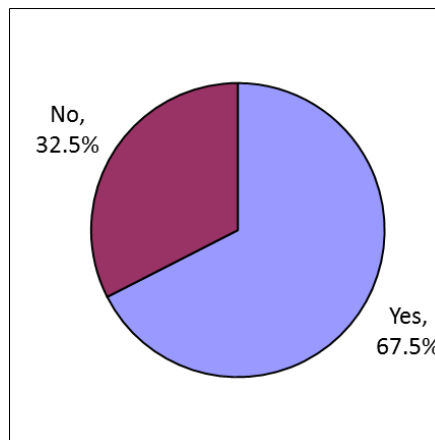
The majority of passenger survey respondents (52 percent) use printed schedules as their primary resource for information about V-Line. The website (40 percent) and calling dispatch to ask questions (18 percent) were the other most common resources for information. Fewer passengers ask drivers or other passengers, use posters at bus stops, or Facebook pages.

Exhibit 7: Information Resources



As V-Line considers the most effective outreach and marketing methods in the future, it is important to understand how many passengers use smartphones that are capable of receiving text messages and accessing applications. According to passenger survey results, 67.5 percent of survey respondents have a smart phone.

Exhibit 8: Smartphone

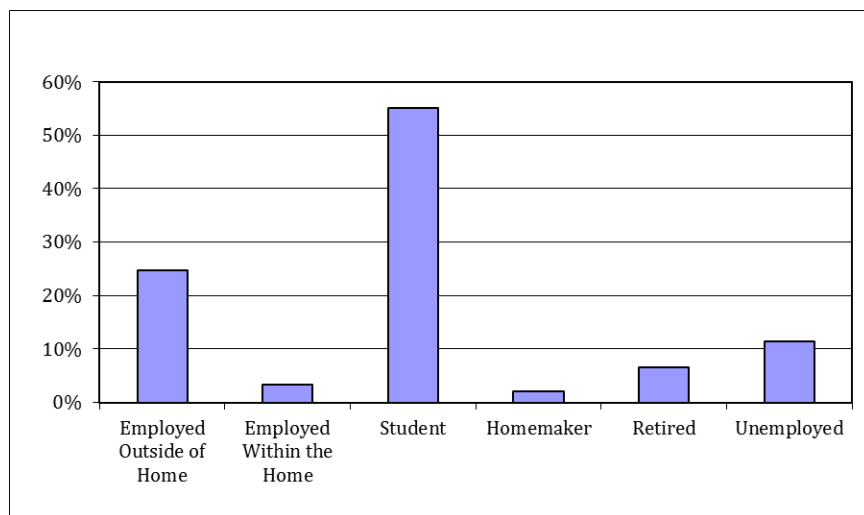


Passenger Demographics

In order to continue providing the most appropriate service to its consumers, it is important for V-Line to understand the demographics and socio-economic characteristics of its passengers. The following charts provide a summary of passenger characteristics of survey respondents.

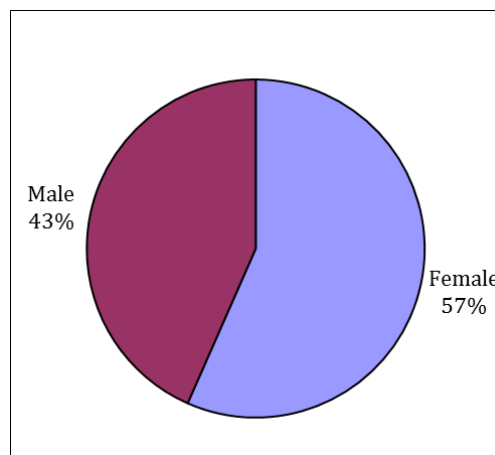
More than half (58 percent) of survey respondents indicated that they are students. Another 24 percent were employed outside of the home and 10 percent were unemployed. A small percent of respondents were retired (7 percent); employed within the home (3 percent); or a homemaker (2 percent).

Exhibit 9: Employment or Student Status



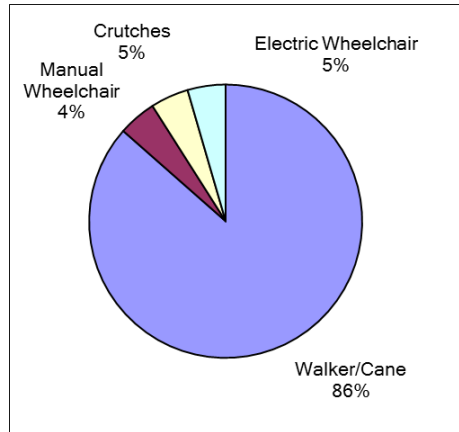
Survey respondents were 57 percent female and 43 percent male.

Exhibit 10: Gender



Ninety-two percent of survey respondents did not use a mobility device. Of the thirty of respondents who indicated that they do use a mobility aid, 86 percent, use a walker or cane. Five percent or fewer use each of the following aids: manual wheelchair (4 percent); electric wheelchair (5 percent); and crutches (5 percent).

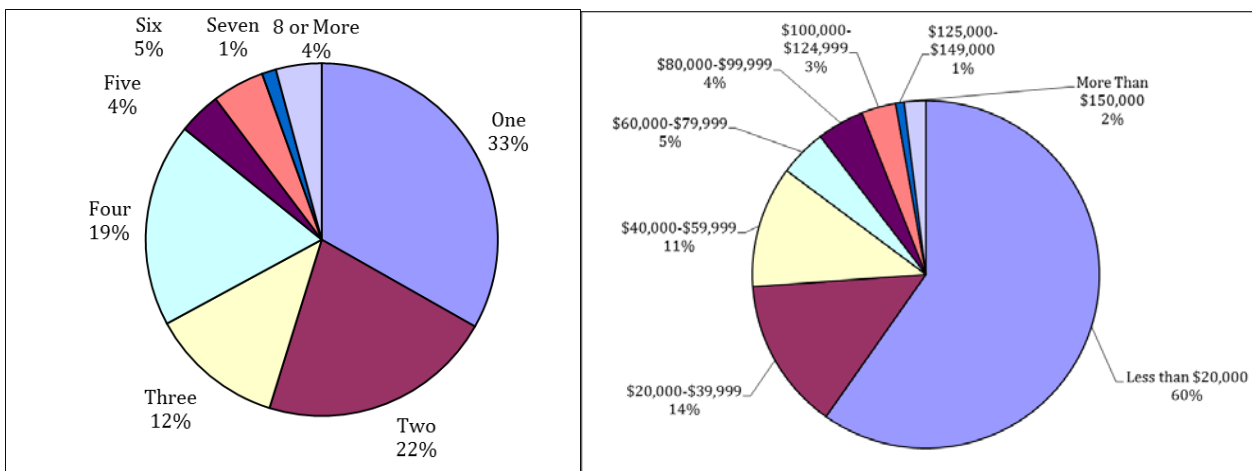
Exhibit 11: Mobility Aids



Household size and income are indicators of the passengers who are above and below the poverty level. Survey results indicate that one third of respondents live in a household of one person. Another 22 percent of respondents have a household size of two people. Twelve percent of respondents have a household size of three people, and 18 percent have a household size of four people. The remaining respondents have five or more people per household.

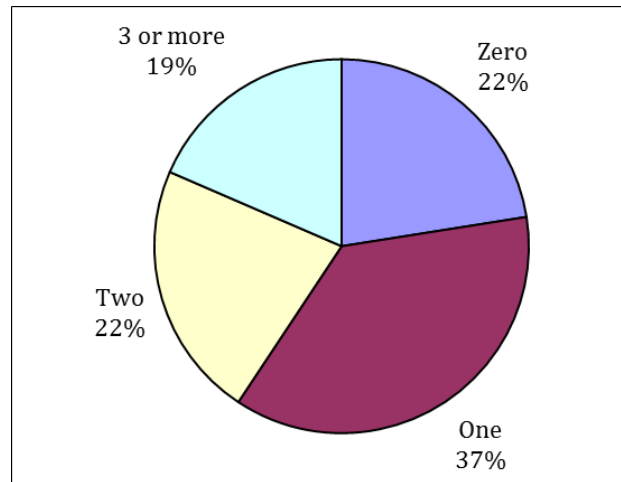
Sixty percent of the passenger households have an annual income of less than \$20,000. Another 14 percent of households earn between \$20,000 and \$39,999 per year. And, 11 percent earn between \$40,000 and \$59,999 per year. About 15 percent of passengers earn \$60,000 or less per year.

Exhibit 12: Household Size and Income



Passengers were asked how many individuals in their household have a valid driver's license. This statistic is an indication of choice riders (someone who rides because they want to ride) versus non-choice riders (someone who has no automobile and is likely to have no alternative mode of transportation). Survey results indicated that 22 percent of passengers have no one in their household with a valid driver's license. This group is likely to include some of the Valparaíso University international student body and freshmen students, as well as the non-student population.

Exhibit 13: Number of People in the Household with a Valid Driver's License



ROUTE LEVEL SURVEY SUMMARIES

The following paragraphs outline the survey results by route. While all survey data is available at the route level, only select charts are included in the body of the report. Additional survey data at the route level is provided in the Appendix.

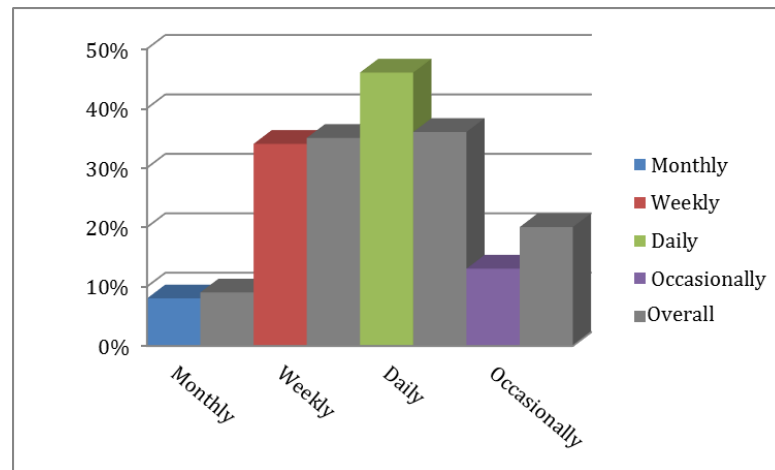
Yellow Route

Yellow Route passengers were surveyed between 6:00 AM and 8:30 PM or later.

Frequency of Riding V-Line

Nearly 46 percent of survey respondents on the Yellow Route indicated that they typically ride V-Line on a daily basis. Therefore, the Yellow Route had a higher percentage of daily riders compared to systemwide survey results. Another 34 percent indicated that they ride weekly. The remaining passengers ride occasionally (13 percent) or monthly (8 percent). The distribution of ridership frequency from Yellow Route survey respondents was similar to the systemwide survey results; however, a higher percentage of the daily and a lower percentage of occasional riders are on the Yellow Route.

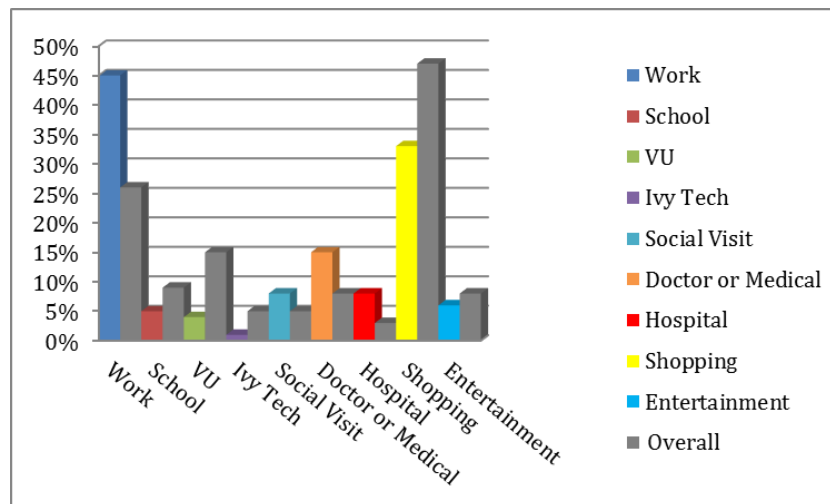
Exhibit 14: Frequency of Riders on Yellow Route and Systemwide



Trip Purpose

The most common trip purpose for systemwide (overall) survey respondents was shopping. On the Yellow Route, the most common trip purpose was divided between work (45 percent) and shopping (33 percent). Other common trip purposes on the Yellow Route were doctor and medical appointments (15 percent).

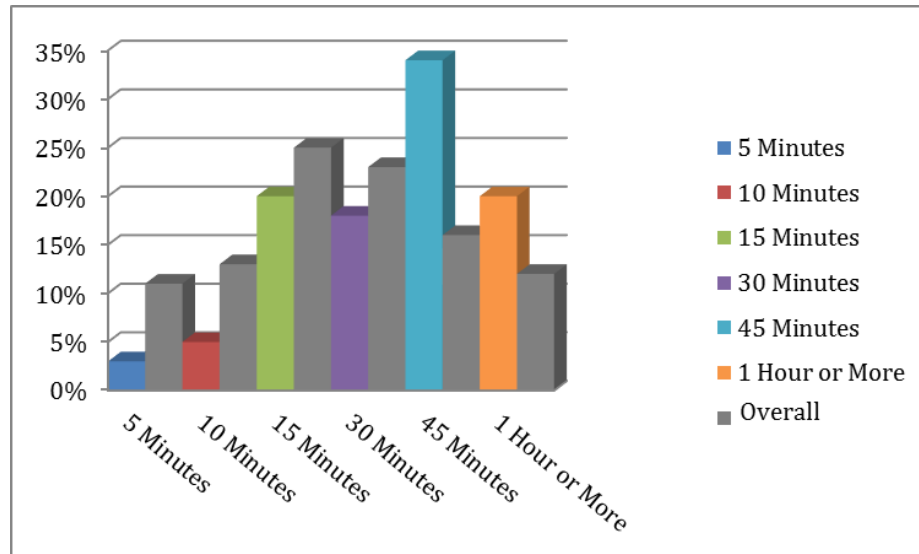
Exhibit 15: Trip Purpose



Trip Ride Time

The one-way trip time for 34 percent of Yellow Route passengers was approximately 45 minutes. Another 20 percent of Yellow Route passengers indicated that their one-way trip takes one hour or more. These averages are well above the systemwide results.

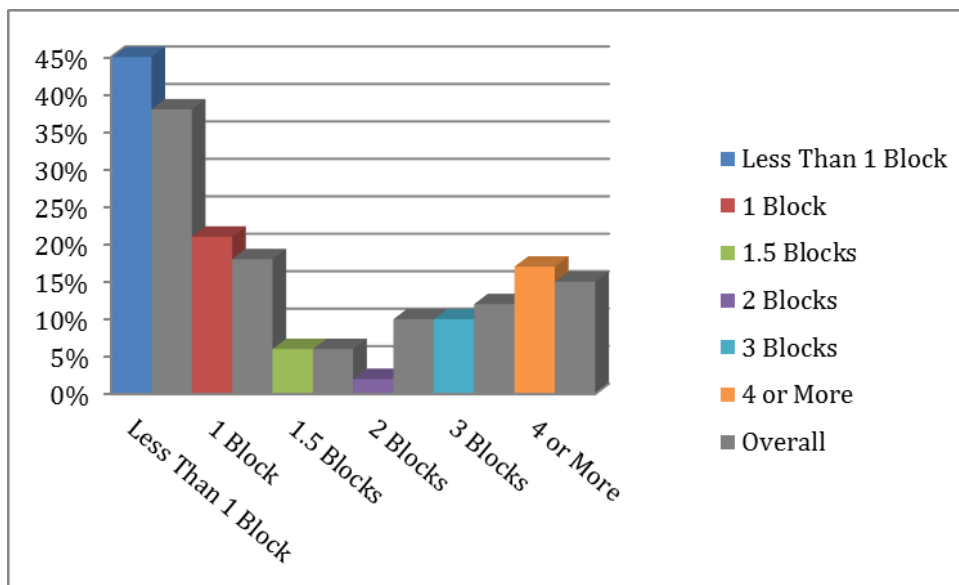
Exhibit 16: Ride Time



Distance from Bus Stop

Nearly 45 percent of Yellow Route survey respondents traveled less than one block to the bus stop where they boarded the vehicle. Another 20 percent of passengers traveled one block to the bus stop. This is balanced by another 17 percent of passengers who traveled four or more blocks to the bus stop.

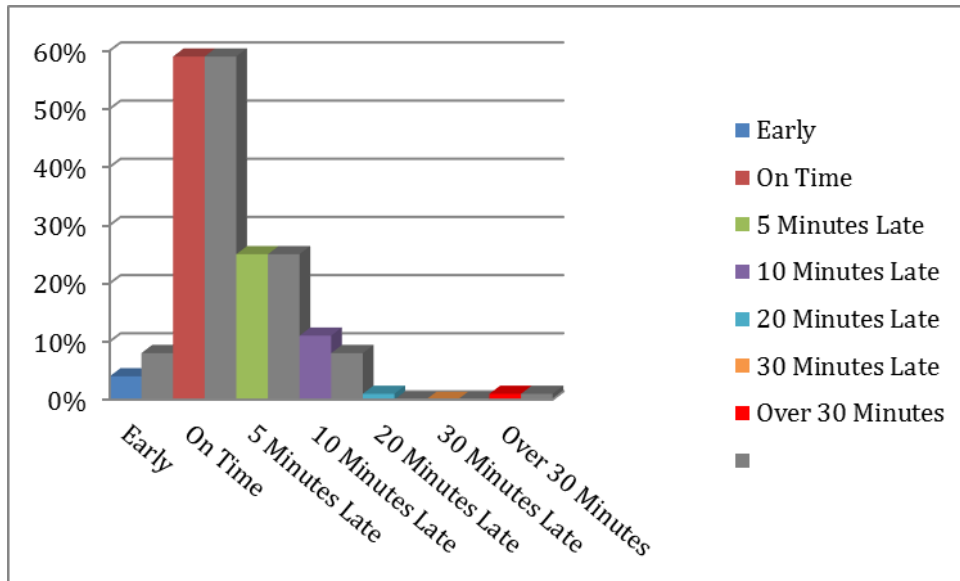
Exhibit 17: Distance Traveled to Bus Stop



On-Time Performance

Fifty-nine percent of Yellow Route passengers indicated that the vehicle arrived on-time to pick them up. Another 25 percent indicated that the vehicle was five minutes late. Eleven percent indicated that the vehicle was 10 minutes late, and four percent indicated that the vehicle was early. These results are consistent with the systemwide (overall) survey results. Yellow Route survey results also indicated that while 59 percent of passengers were picked up on-time, 68 percent arrived to their destination on time. This result was consistent between the Green Route and the entire system; and indicates that the vehicles are making up for some late and early pick-ups along the route.

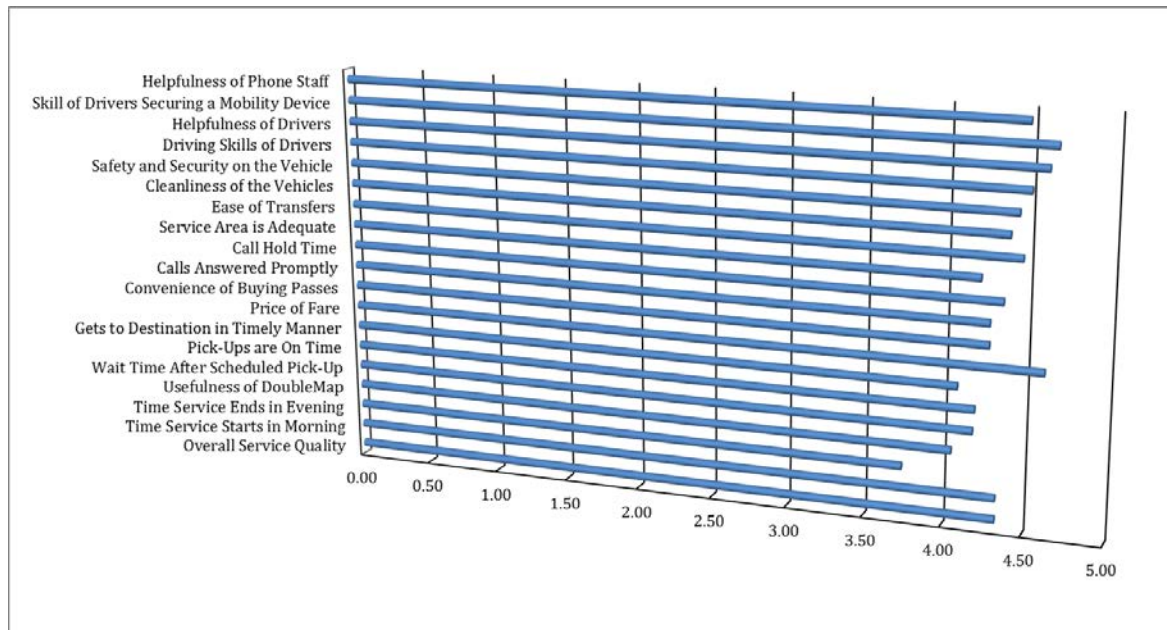
Exhibit 18: On-Time Performance



Customer Service Rating

Consistent with the systemwide service ratings, passengers on the Yellow Route are generally pleased with V-Line service; 18 out of 19 customer service areas received an average rating of 4 or higher (on a scale of 1 to 5 with 5 being the highest). Yellow Route passengers gave the lowest ratings to the time the service ends in the evenings.

Exhibit 19: Customer Service Ratings-Yellow Route Passengers



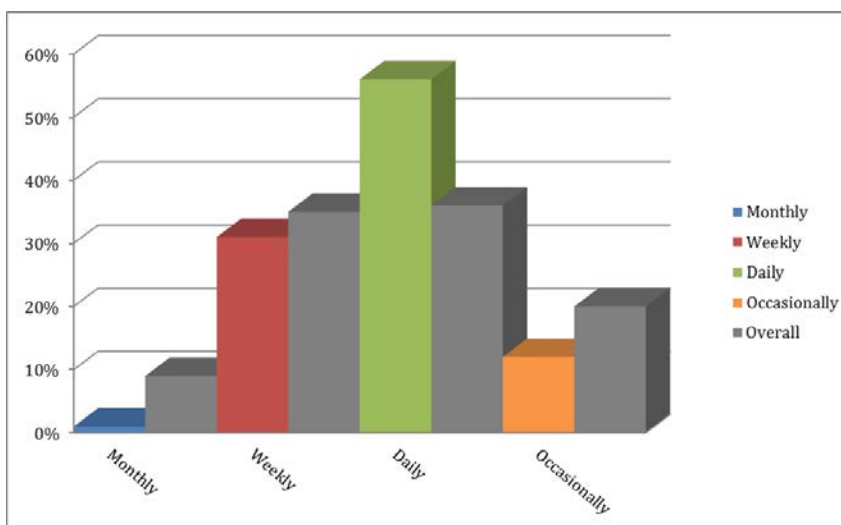
Green Route

Green Route passengers were surveyed between 6:00 AM and 8:30 PM. There were a total of 110 responses to the passenger survey.

Frequency of Riding V-Line

Fifty-seven percent of survey respondents on the Green Route indicated that they typically ride V-Line on a daily basis. Another thirty-one percent indicated that they ride weekly. The remaining passengers ride occasionally (12 percent) or monthly (1 percent). The distribution of ridership frequency from Green Route survey respondents was similar to the systemwide survey results; however, a higher percentage of the daily riders are on the Green Route.

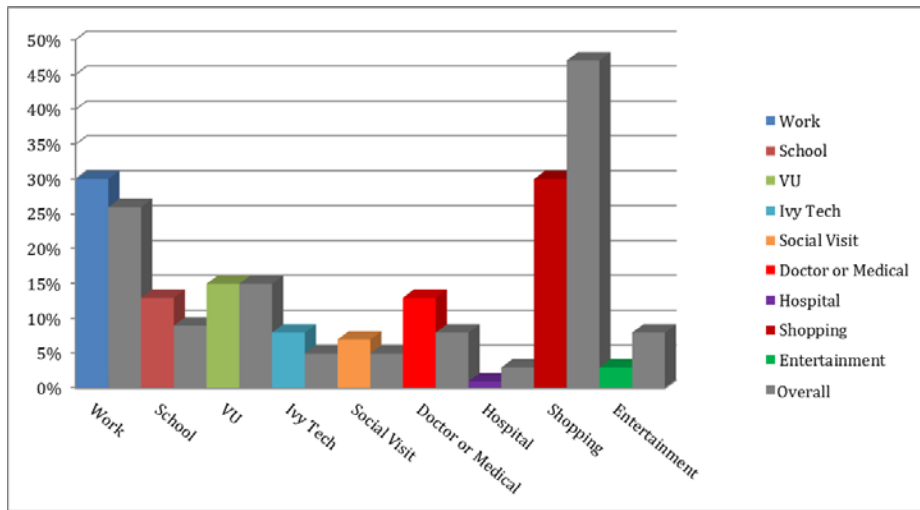
Exhibit 20: Frequency of Riders on Green Route and Systemwide



Trip Purpose

The most common trip purpose for the systemwide (overall) survey respondents was shopping. On the Green Route, the most common trip purpose was divided between work (31.6 percent) and shopping (31.6 percent). Other common trip purposes on the Green Route were Valparaiso University (14.3 percent) and medical appointments (12.2 percent).

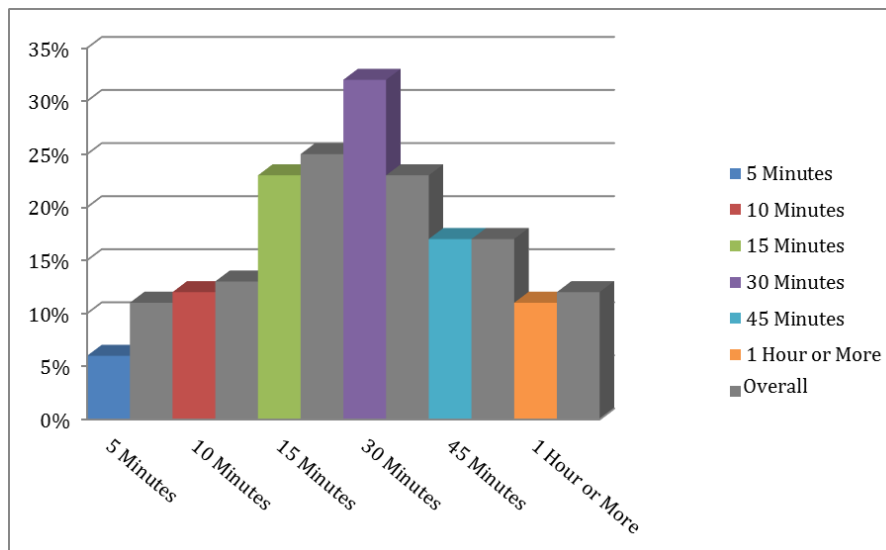
Exhibit 21: Trip Purpose



Trip Ride Time

The one-way trip time for 32 percent of Green Route passengers was approximately 30 minutes. And, most passengers indicated that a one-way trip on the Green Route lasts 30 minutes to one hour or more. Generally, a higher percentage of Green Route passengers can complete a trip in 30 minutes, compared to the systemwide average.

Exhibit 22: Ride Time

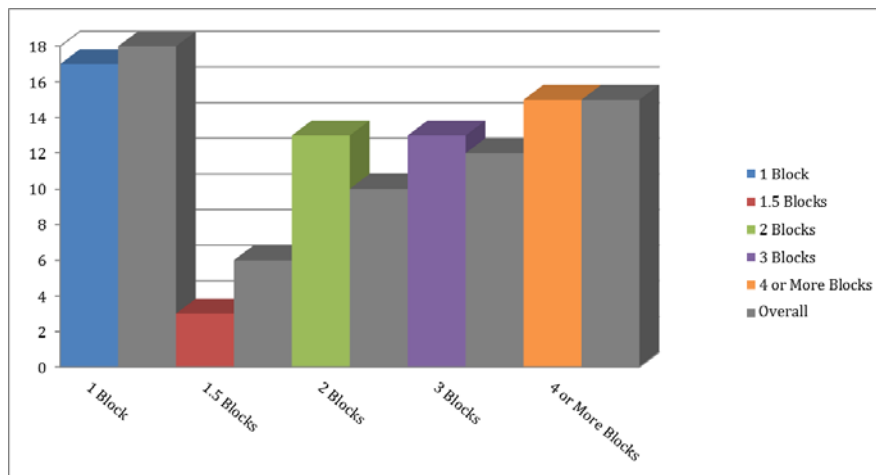


Distance from Bus Stop

Approximately 40 percent of Green Route survey respondents traveled less than one block to the bus stop where they boarded the vehicle. The distance to the bus stop for Green Route passengers is

consistent with systemwide (overall) survey results, with slightly more Green Route passengers being two or three blocks from a bus stop when compared to passengers on other routes.

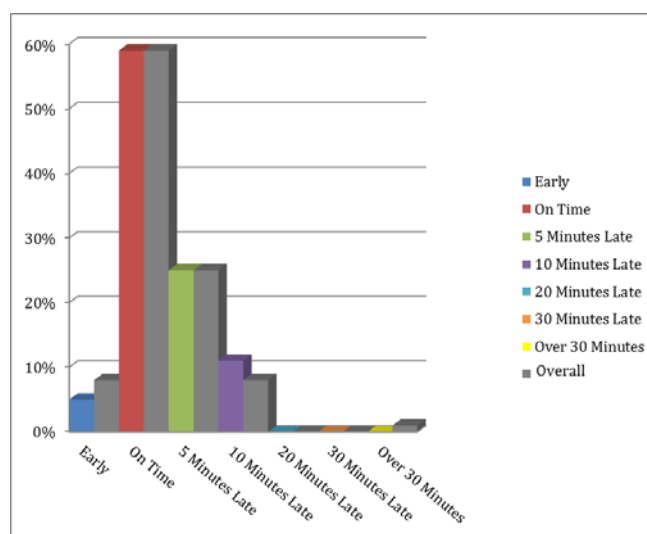
Exhibit 23: Distance Traveled to Bus Stop



On-Time Performance

Fifty-nine percent of Green Route passengers indicated that the vehicle arrived on-time to pick them up. Another 25 percent indicated that the vehicle was five minutes late. Ten percent indicated that the vehicle was 10 minutes late, and five percent indicated that the vehicle was early. These results are consistent with the systemwide (overall) survey results. Survey results also indicated that while 59 percent of passengers were picked up on-time, 70 percent arrived to their destination on time. This result was consistent between the Green Route and the entire system; and indicates that the vehicles are making up for some late and early pick-ups along the route.

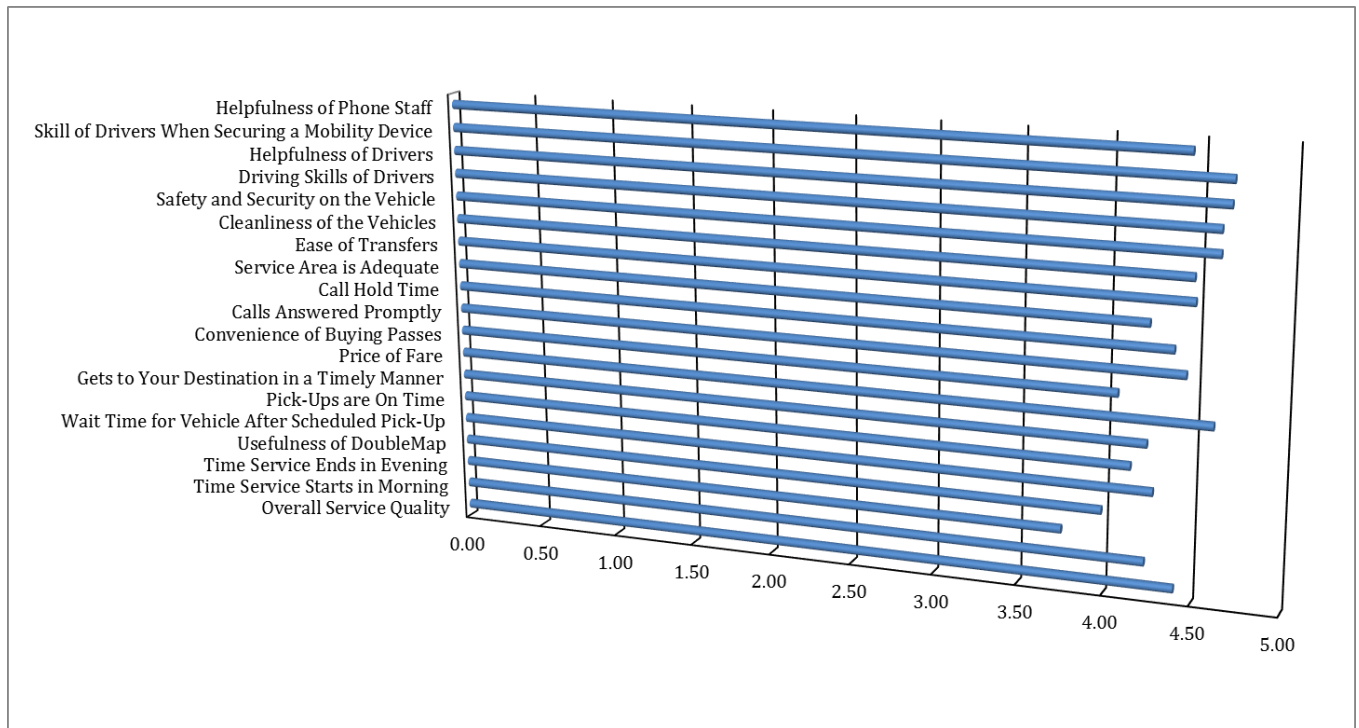
Exhibit 24: On-Time Performance



Customer Service Rating

Consistent with the systemwide service ratings, passengers on the Green Route are generally pleased with V-Line service and 18 out of 19 customer service areas received an average rating of 4 or higher (on a scale of 1 to 5 with 5 being the highest). Green Route passengers gave the lowest satisfaction ratings to the time the service ends in the evenings and the usefulness of the DoubleMap application.

Exhibit 25: Customer Service Ratings-Green Route Passengers



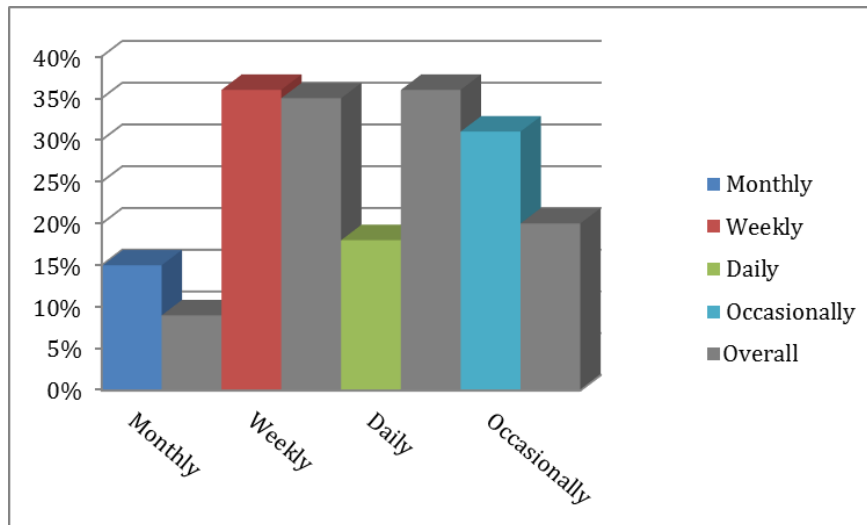
Brown Route

Survey results from the Brown Route are provided in the following paragraphs. A total of 157 surveys were completed by passengers riding the Brown Route.

Frequency of Riding V-Line

Thirty-nine percent of survey respondents on the Brown Route indicated that they typically ride V-Line one time per week. Another thirty-two percent indicated that they ride occasionally. The remaining passengers ride daily (16 percent) or monthly (13 percent). The distribution of ridership frequency from Brown Route survey respondents was similar to the systemwide survey results, except there were significantly fewer daily Brown Route riders and significantly more occasional riders compared to the systemwide (overall) results.

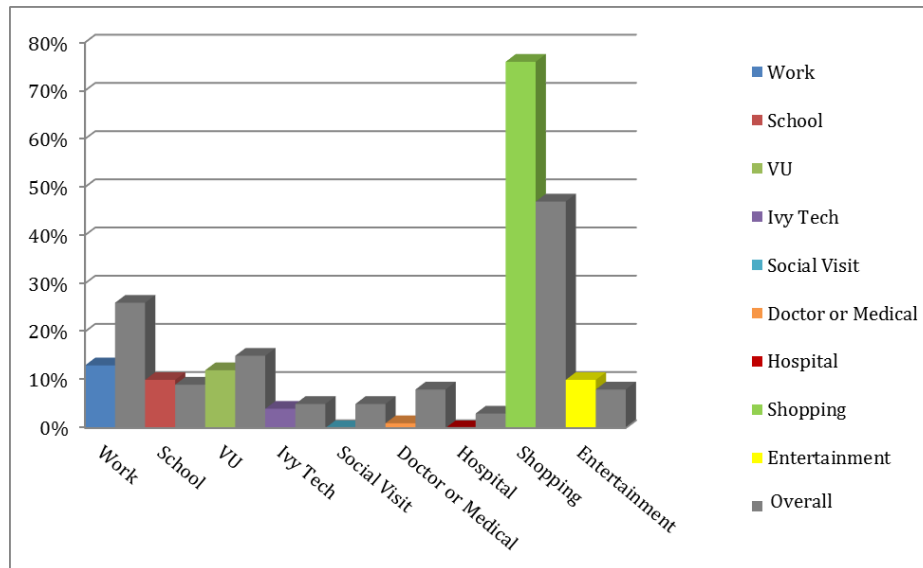
Exhibit 26: Frequency of Riders on Brown Route and Systemwide



Trip Purpose

The most common trip purpose for the systemwide (overall) survey respondents was shopping. Brown Route survey respondents were also primarily riding for the purpose of going shopping (75 percent). This is not surprising because the Brown Route serves the University as well as the major shopping centers in the City. The second most common trip purpose was evenly divided between Valparaiso University and Work (13.5 percent each). The following exhibit illustrates the trip purpose for Brown Route passengers compared to systemwide (overall) survey results.

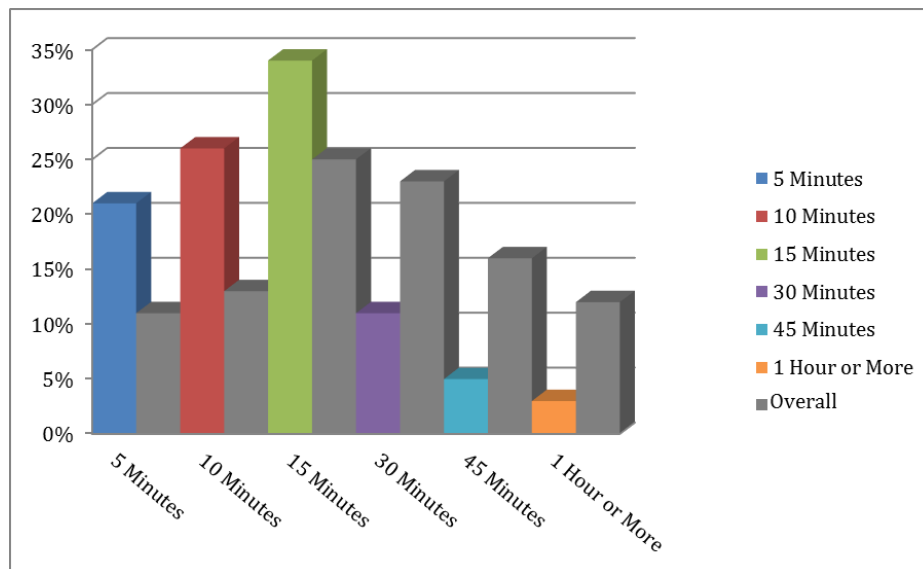
Exhibit 27: Trip Purpose



Trip Ride Time

The one-way trip time for 30 percent of Brown Route passengers was approximately 15 minutes, while, 48 percent of Brown Route passengers had a one-way trip that lasted 10 minutes or less. This statistic is different from the systemwide trip lengths which tended to be 15 minutes to one hour or more for most passengers.

Exhibit 28: Ride Time



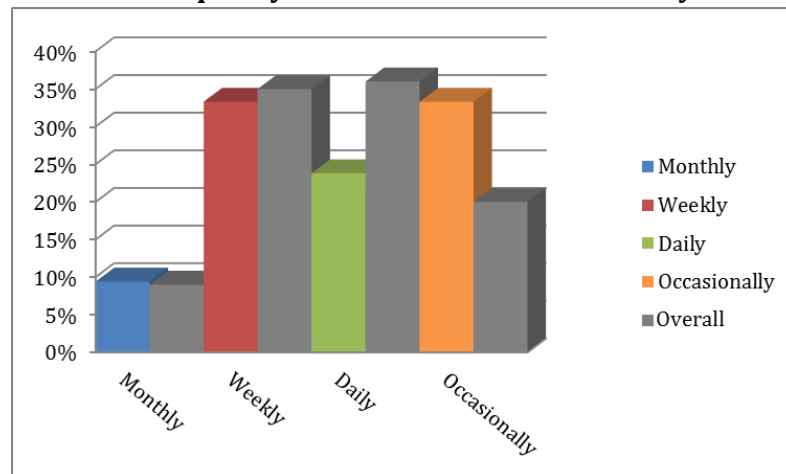
Red Route

Passengers on the Red Route were surveyed between 6:00 AM and 11:30 PM on Friday, Saturday, and Sunday. A total of 68 valid surveys were collected from passengers on the Red Route.

Frequency of Riding V-Line

The Red Route had higher numbers of weekly or occasional riders compared to systemwide survey results. Thirty-three percent of survey respondents on the Red Route indicated that they typically ride V-Line on a weekly basis. Another 33 percent indicated that they ride occasionally. The distribution of ridership frequency from survey respondents on the Red Route was similar to the systemwide survey results; however, there is a lower percentage of the daily riders are on the Red Route because the route only operates on Friday, Saturday, and Sunday.

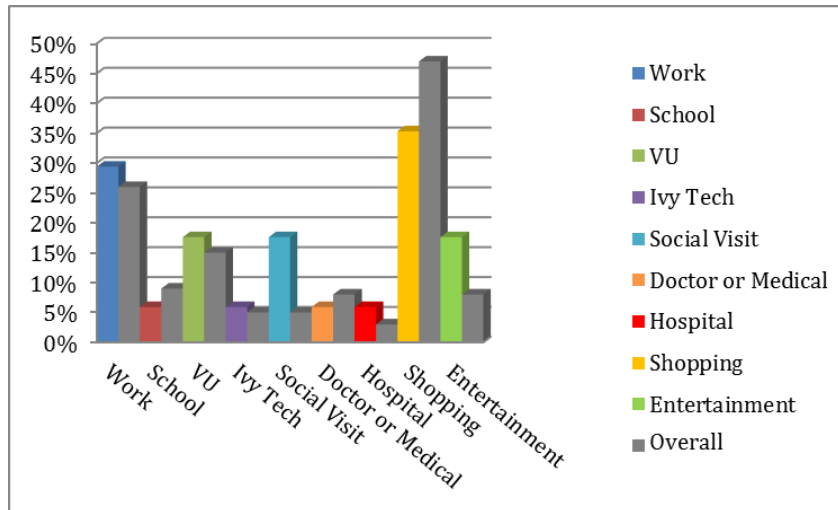
Exhibit 29: Frequency of Riders on Red Route and Systemwide



Trip Purpose

The most common trip purpose for the systemwide (overall) survey respondents was shopping. On the Red Route, the most common trip purpose was divided between shopping (31 percent) and Work (31 percent). Another 18.8 percent of responses indicated that they ride the Red Route for Valparaiso University, Social Trips, and Entertainment.

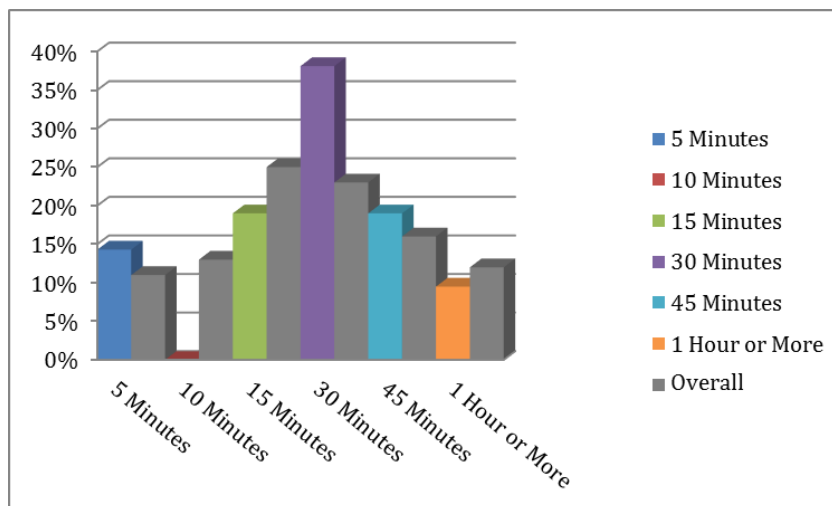
Exhibit 30: Trip Purpose



Trip Ride Time

The one-way trip time for 38 percent of Red Route passengers was 30 minutes. Fourteen percent of passengers ride for five minutes. And, 19 percent of passengers ride for 45 minutes, while an equal number (19 percent) of passengers ride for 15 minutes.

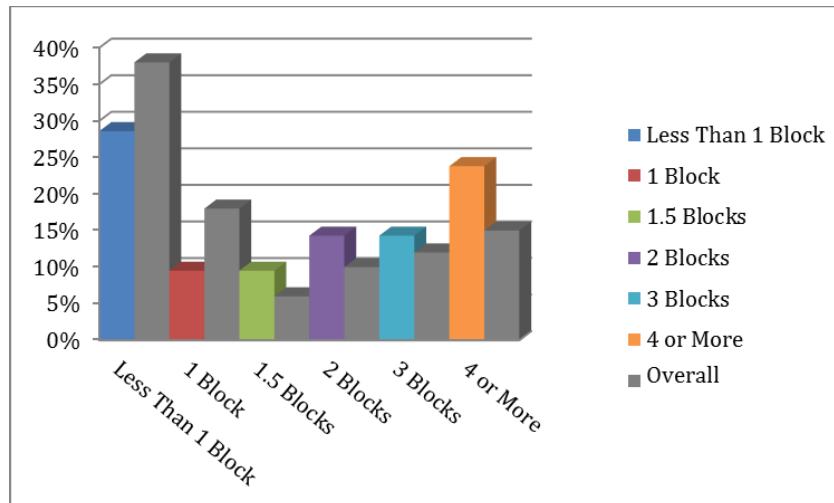
Exhibit 31: Ride Time



Distance from Bus Stop

Thirty percent of the survey respondents on the Red Route traveled less than one block to the bus stop where they boarded the vehicle. Twenty percent traveled one to one and a half blocks to the bus stop. Thirty percent travel two to three blocks to the bus stop. Another 20 percent traveled four blocks or more.

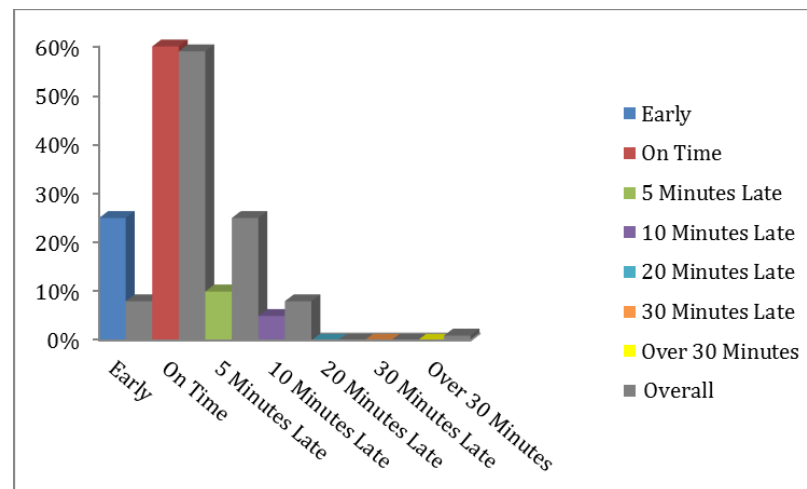
Exhibit 32: Distance Traveled to Bus Stop



On-Time Performance

Sixty percent of Red Route passengers indicated that the vehicle arrived on-time to pick them up. Another 25 percent indicated that the vehicle was early. According to survey results, the Red Route tends to run earlier than other V-Line routes.

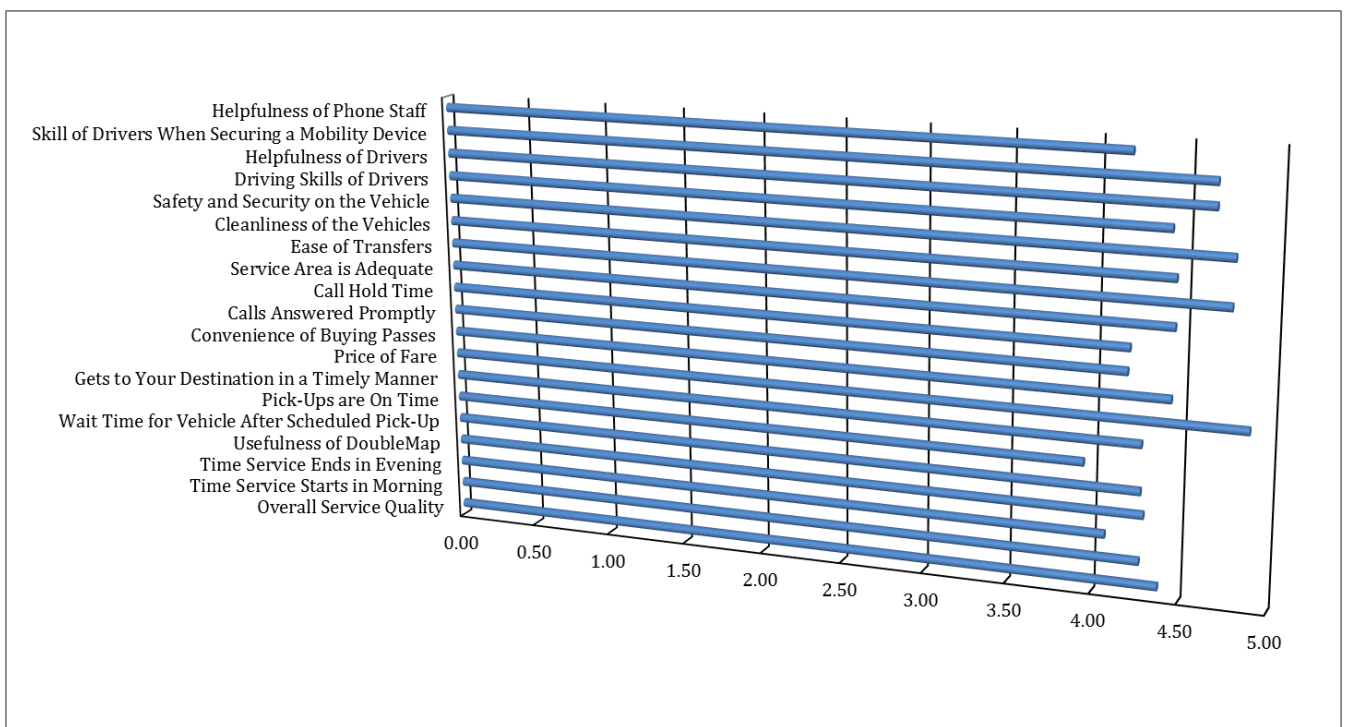
Exhibit 33: On-Time Performance



Customer Service Rating

Customer satisfaction levels from Red Route passengers were similar when compared to the other routes. Eighteen of the 19 customer service categories received a score of 4 or higher on a scale of 1 to 5 (with 5 being the highest score). The lowest rated categories were on-time performance of vehicles; the time the service ends in the evening; and the length of time on hold when calling V-Line. It is noted that the lowest satisfaction rating was with regard to on-time performance. While the Red Line had better than average on-time performance when compared to other V-Line routes, it tends to run early. The lower satisfaction rating is, therefore, most likely to running early rather than late.

Exhibit 34: Customer Service Ratings-Red Route Passengers



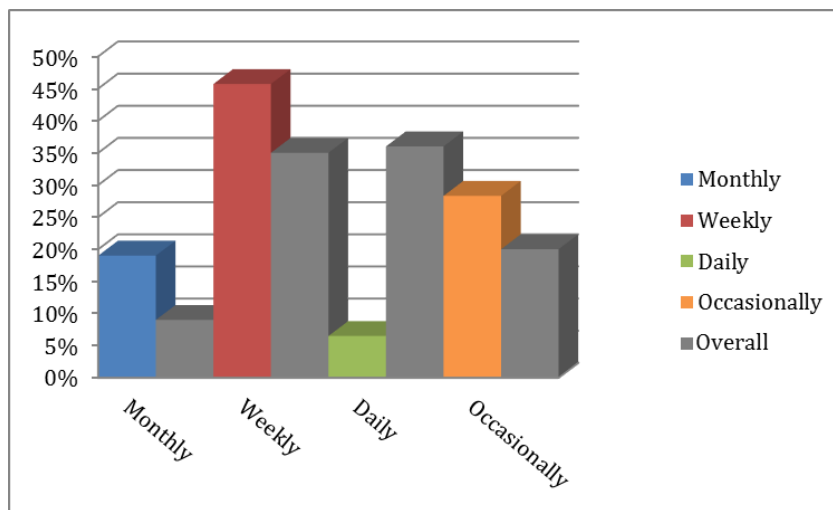
Orange Route

Passengers on the Orange Route were surveyed in February and April. A total of 46 valid surveys were collected from passengers on the Orange Route.

Frequency of Riding V-Line

Nearly 46 percent of survey respondents on the Orange Route indicated that they typically ride V-Line on a weekly basis. Another 28 percent indicated that they ride occasionally. The distribution of ridership frequency from survey respondents on the Orange Route was similar to the Red Route.

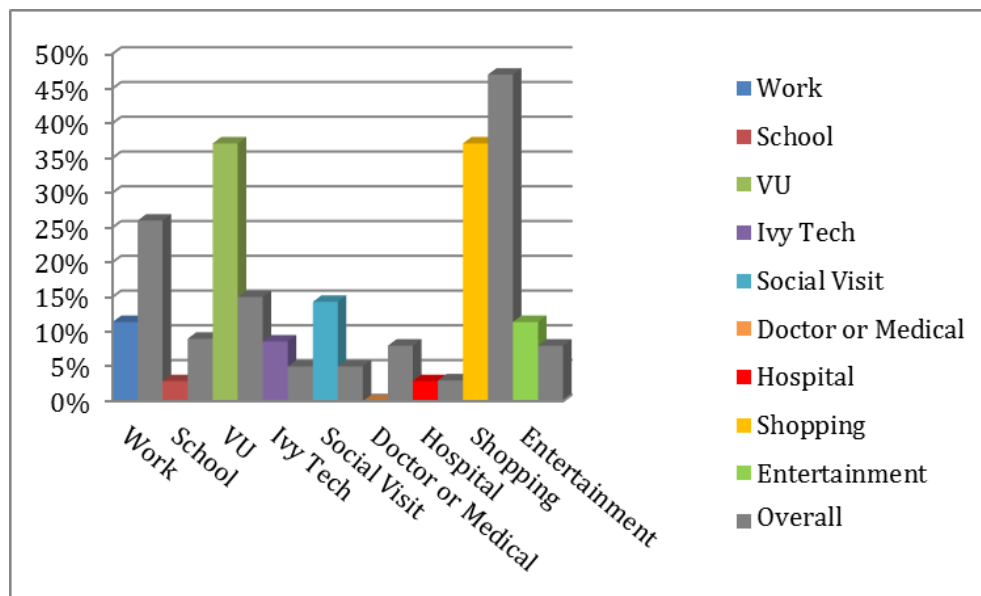
Exhibit 35: Frequency of Riders on Orange Route and Systemwide



Trip Purpose

The most common trip purpose for the systemwide (overall) survey respondents was shopping. On the Orange Route, the most common trip purpose was divided between shopping (37 percent) and Valparaiso University (37 percent). Another 14 percent of responses indicated that they ride the Orange Route for Social Trips, and 11 percent ride to/from work. Fewer passengers indicated that they ride the route for School, Ivy Tech, Entertainment, or the Hospital.

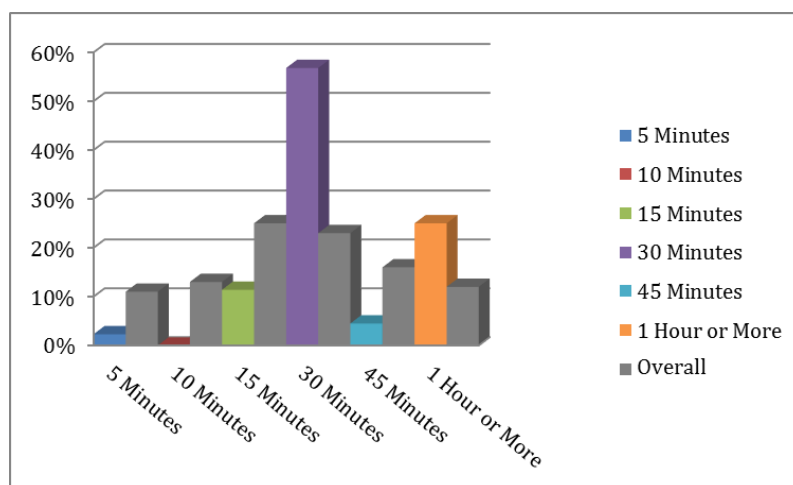
Exhibit 36: Trip Purpose



Trip Ride Time

The one-way trip time for 57 percent of Orange Route passengers was 30 minutes. Another 25 percent of passengers ride for one hour or more. Eleven percent of passengers ride for 15 minutes. Four percent of passengers ride for 45 minutes; and, two percent of passengers ride for five minutes.

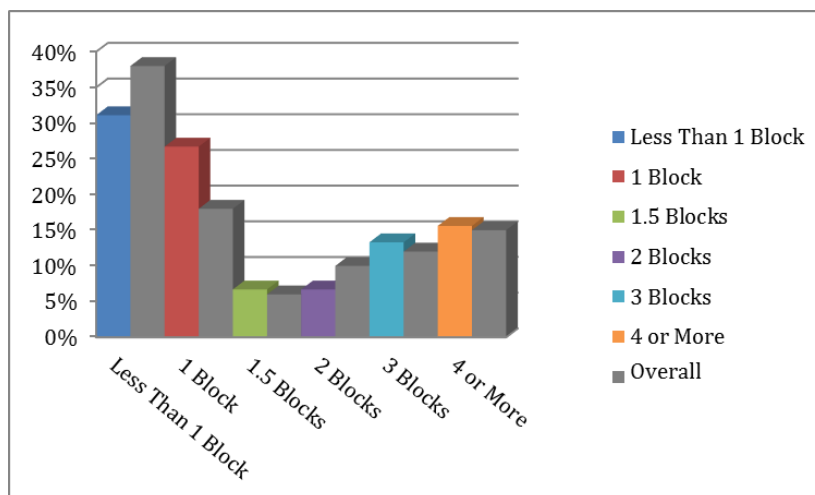
Exhibit 37: Ride Time



Distance from Bus Stop

Thirty-one percent of the survey respondents on the Orange Route traveled less than one block to the bus stop where they boarded the vehicle. Thirty-four percent traveled one to one and a half blocks to the bus stop. Twenty percent travel two to three blocks to the bus stop. Another 16 percent traveled four blocks or more.

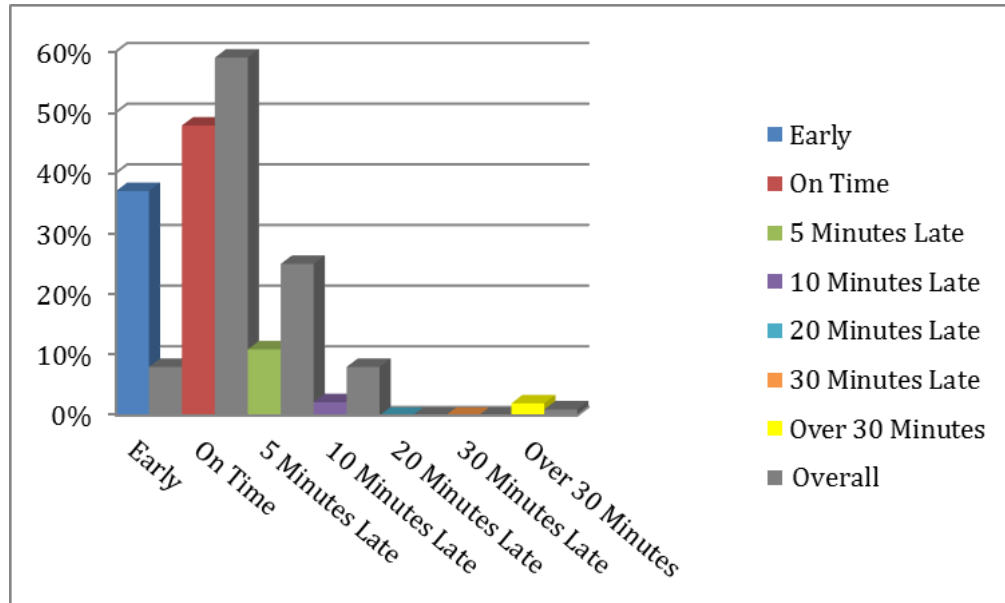
Exhibit 38: Distance Traveled to Bus Stop



On-Time Performance

Forty-eight percent of Orange Route passengers indicated that the vehicle arrived on-time to pick them up. Another 37 percent indicated that the vehicle was early. According to survey results, the Orange Route tends to run earlier than other routes in the system.

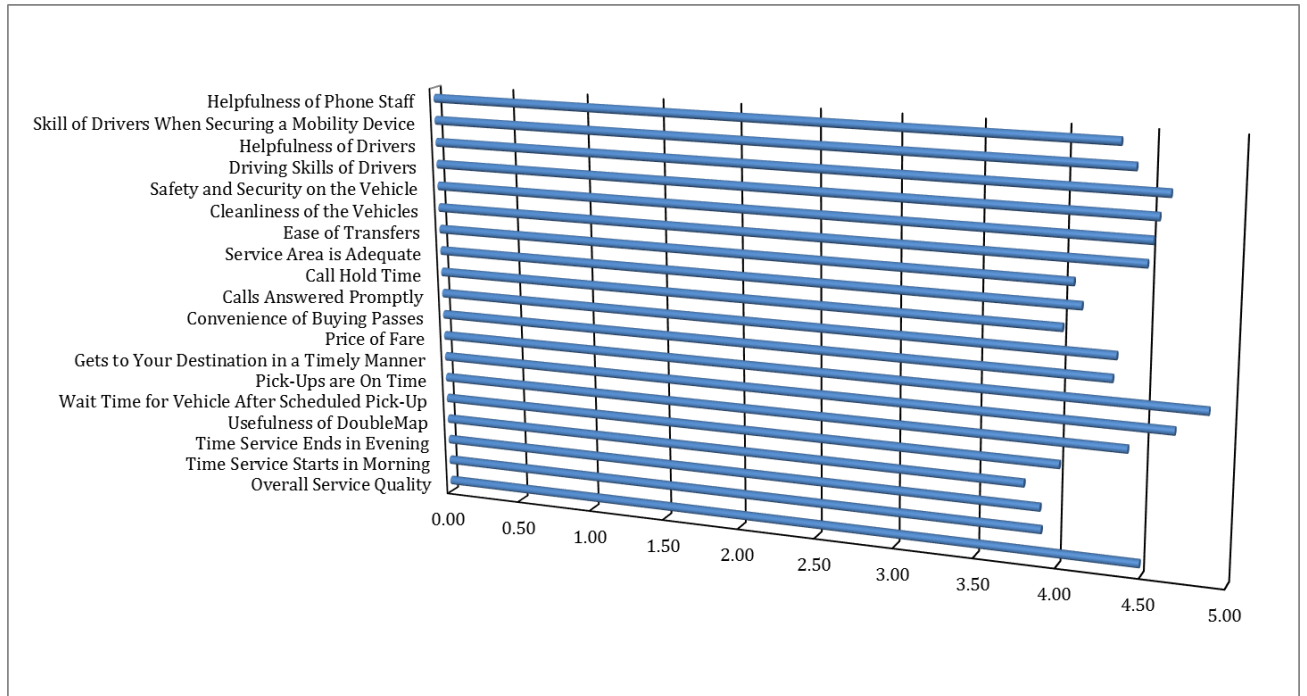
Exhibit 39: On-Time Performance



Customer Service Rating

Customer satisfaction levels from Orange Route passengers were similar when compared to the other routes. Sixteen of the 19 customer service categories received a score of 4 or higher on a scale of 1 to 5 (with 5 being the highest score). The lowest rated categories were usefulness of DoubleMap, and the time the service ends in the evening and starts in the morning.

Exhibit 40: Customer Service Ratings-Orange Route Passengers



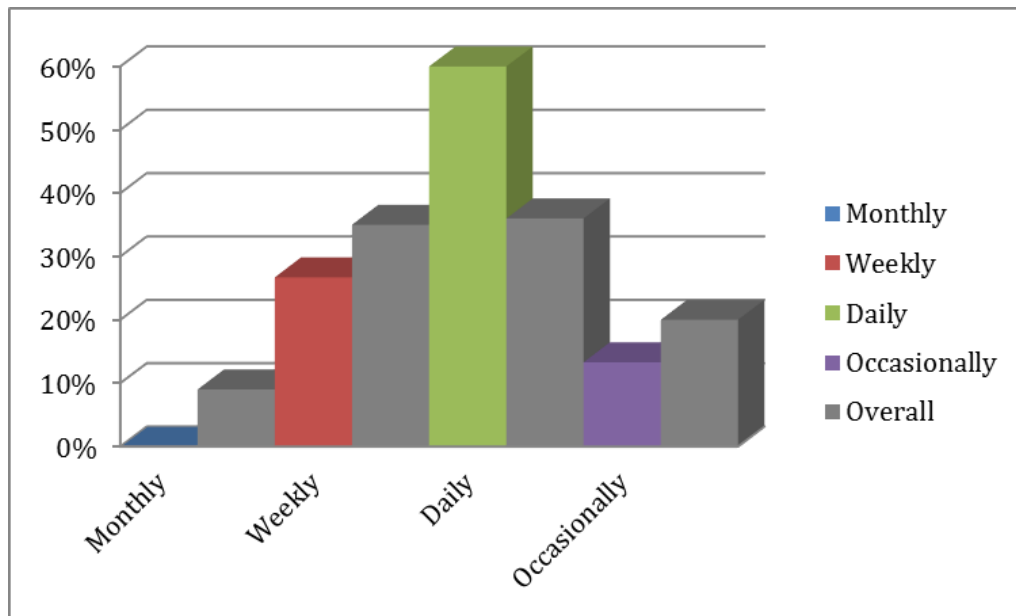
Purple Route

A total of 15 passengers on the Purple route completed a passenger survey.

Frequency of Riding V-Line

Sixty percent of survey respondents on the Purple Route indicated that they typically ride V-Line on a daily basis. Other passengers ride weekly or occasionally.

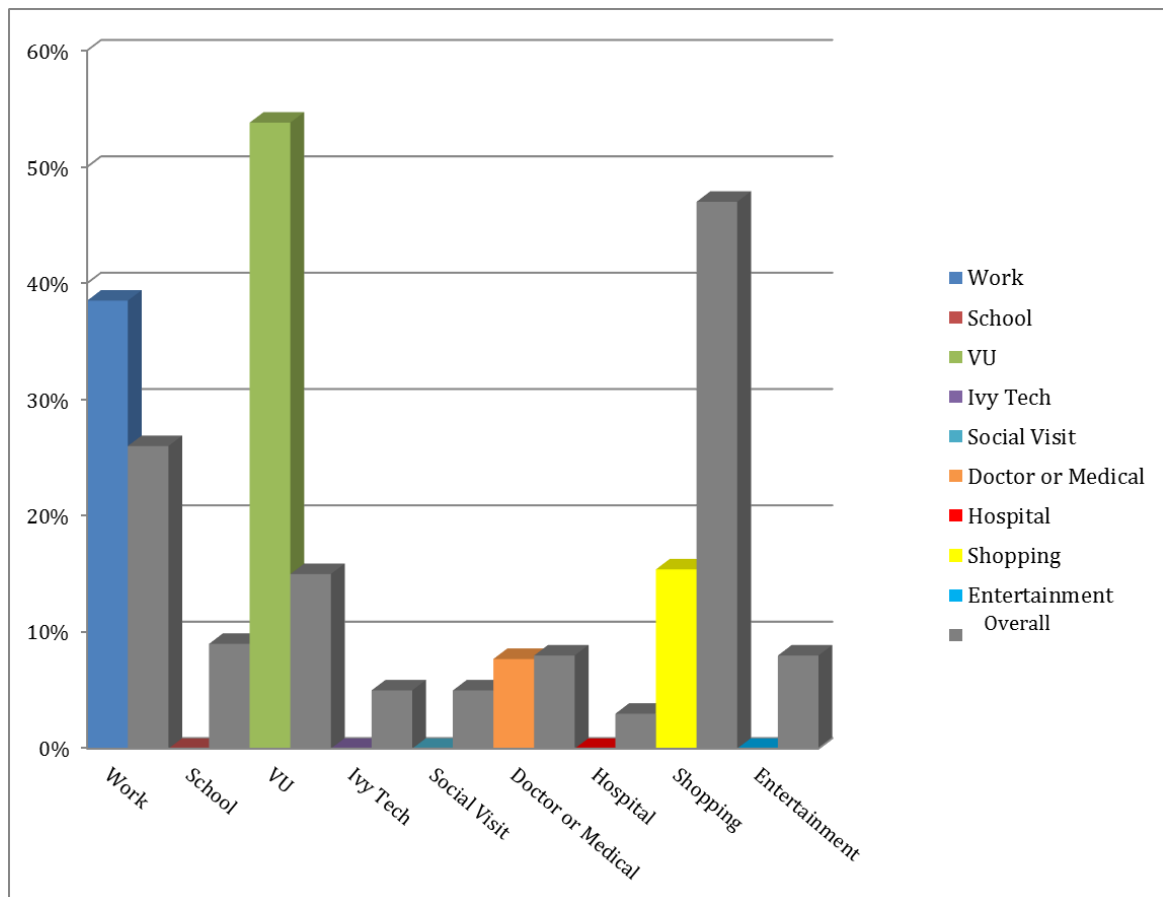
Exhibit 41: Frequency of Riders on Purple Route and Systemwide



Trip Purpose

Nearly 54 percent of Purple Route survey respondents were riding to or from Valparaiso University. Thirty-nine percent of Purple Route passengers were riding to/from work. Another 15 percent were shopping and 8 percent were riding to/from a doctor or medical visit.

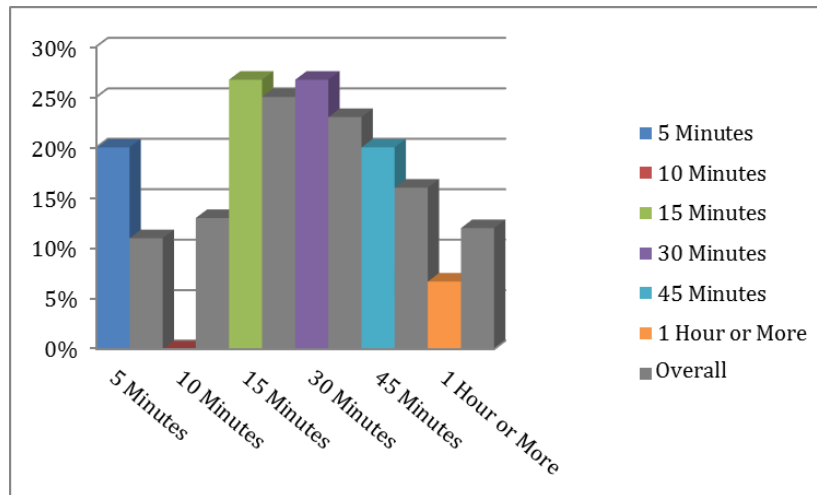
Exhibit 42: Trip Purpose



Trip Ride Time

The one-way trip time for Purple Route passengers varied. For most approximately 27 percent of passengers, the one-way trip took 15 minutes. Another 27 percent rode 30 minutes for a one-way trip. Twenty percent of passengers rode 5 minutes; while another 20 percent rode for 45 minutes. Only one passenger indicated that he or she was riding one hour or more.

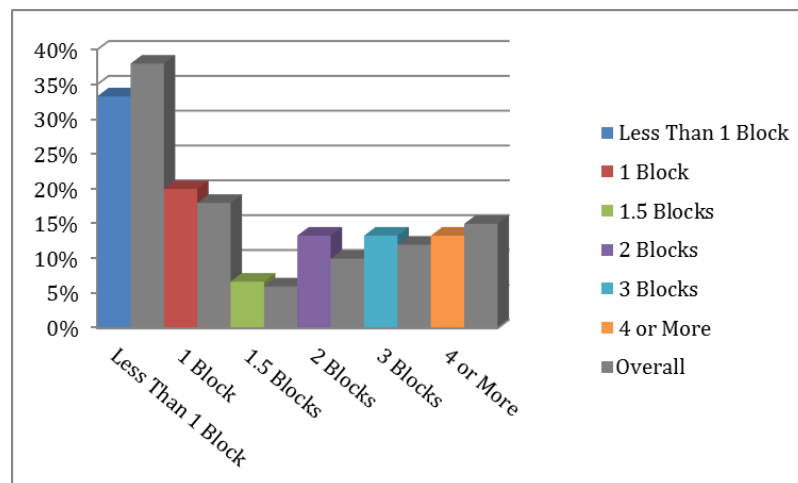
Exhibit 43: Ride Time



Distance from Bus Stop

One third of Purple Route passengers traveled less than one block to board the vehicle. Twenty-seven percent travel one to one and a half blocks to the nearest bus stop. Twenty-seven percent walk two to three blocks to the nearest stop. Thirteen percent walk four or more blocks.

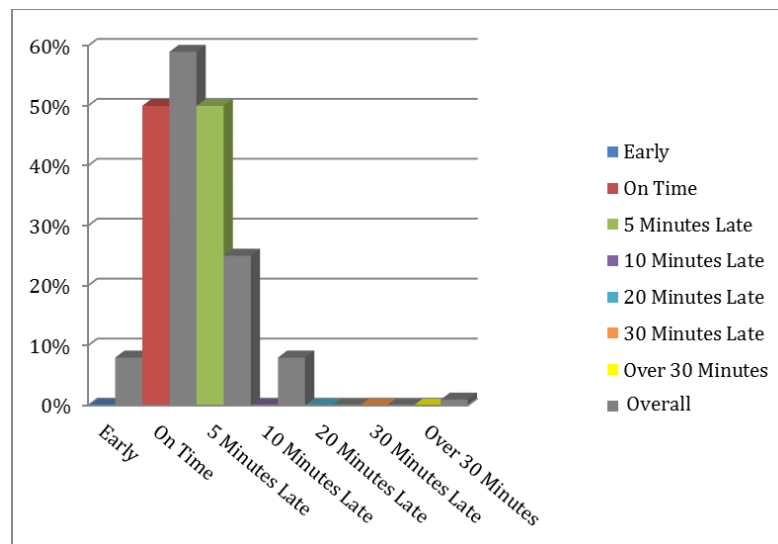
Exhibit 44: Distance Traveled to Bus Stop



On-Time Performance

Fifty percent of Purple Route passengers stated that the vehicle was on-time and another 50 percent indicated that the vehicle arrived 5 minutes late.

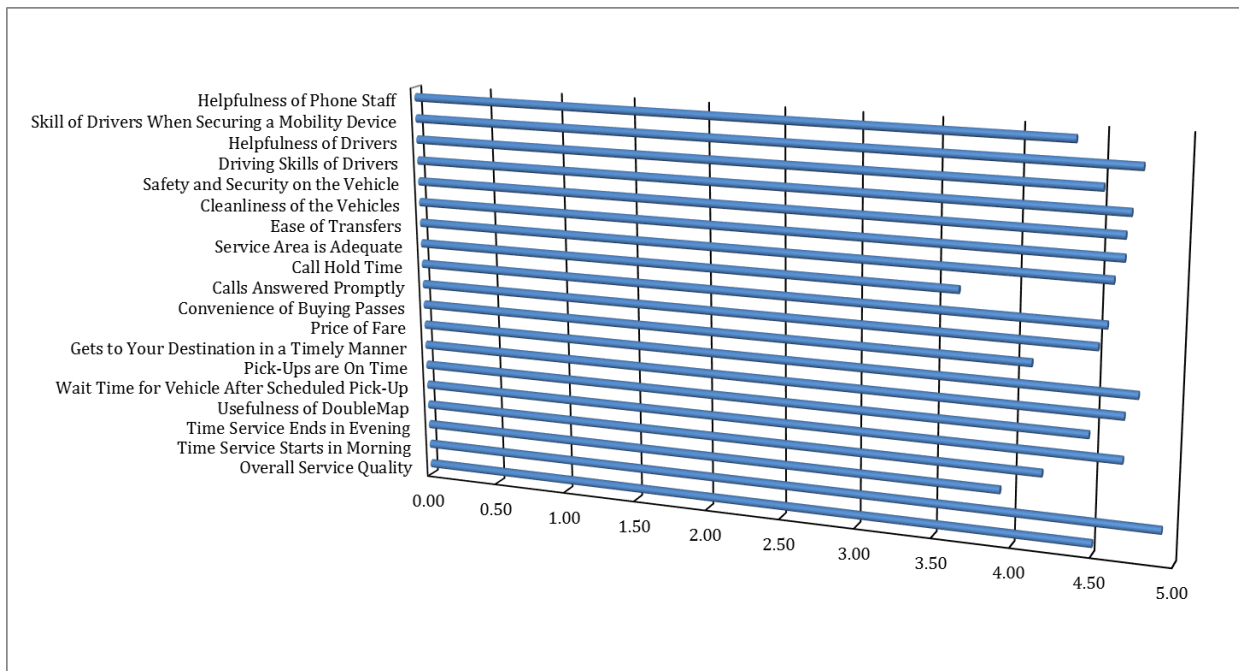
Exhibit 45: On-Time Performance



Customer Service Rating

Customer satisfaction levels from Purple Route passengers were more varied but still overall positive. Seventeen of the 19 customer service categories received a score of 4 or higher. The categories receiving the lowest scores were the adequacy of the service area and the time the service stops in the evening.

Exhibit 46: Customer Service Ratings-Purple Route Passengers



SUMMARY OF PASSENGER SURVEY RESULTS

Overall, passengers appear to be satisfied with V-Line service. Vehicles on the Yellow, Green, and Brown Routes tend to run late but usually make up for lost time in order to get passengers to their destination on time. The Red and Orange Routes run early more frequently than other routes, according to survey results. Passenger ride times are typically greater than 30 minutes, and even greater than 45 minutes on the Purple, Green, and Yellow Routes.

The time service starts in the morning and ends in the evenings, and the usefulness of DoubleMap consistently received among the lowest customer satisfaction ratings.

Survey results indicate that while the core of the service is meeting needs, improvements in route schedules to enhance on-time performance, and adjustments to the Red, Green, and Yellow routes, at minimum, should be considered.

IV. ANALYSIS OF PERFORMANCE

METHODOLOGY

A team of trained surveyors collected passenger counts and on-time performance data for each V-Line route at the stop level. Data was collected while passengers were on board the vehicles. Log sheets were provided to each surveyor for each run to minimize the margin of error. Sample log sheets are provided in the Appendix for reference.

Data was collected during the week of February 10. Each hour of service was counted. Portions of any weekday route may have been collected on different days and then put together to include all hours of service. Saturday and Sunday service counts were conducted entirely on February 15 and 16, 2014.¹

PURPOSE

The data collection results outlined in this Chapter provide V-line staff with a snapshot of the activity at each of the V-Line stops. The on-time performance data further enhances the information by revealing portions of the route where the vehicles tend to run earlier or later than scheduled. The data also reveals potential opportunities where V-Line may consider eliminating unutilized stops. As supported by the passenger survey results, many times when the vehicle is late for a pick-up, it still arrives on-time to the passenger's destination. Analysis of on-time performance at the stops will help V-Line staff and planners to adjust the schedule or route to improve reliability and customer service.

RESULTS

This chapter summarizes the analysis of existing services and activities at each bus stop for each hour of operation for V-Line routes.

Existing Services Overview

V-Line is a deviated route service that consists of six routes. V-Line service is offered seven days per week, with reduced service during late nights and weekends. The Red and Orange Routes operate on Friday, Saturday, and Sunday only. Red and Orange Routes interline three times on Friday and five times on Saturday and Sunday.

¹ The following weekend runs were counted a second time in April 2014 and a summary of differences in the data is provided in Appendix B: Saturday: Brown (7PM, 8PM, and 9PM) Green (all), Red (1:35PM) Yellow (2:18PM, 3:18PM), Friday: Orange (9:33PM) Red (10:33PM). Supplemental data was not added to the December counts in order to protect the statistical validity of the data.

The Purple Route was added to the system in December 2013. The Purple Route operates from 8:15 PM to 10:15 PM, Monday through Saturday. The Purple Route is a trial route implemented to address late night transportation needs and demand. As of December 2013, the Purple Route had the highest ridership per mile of all V-Line routes. The Orange and Red Routes provide evening and weekend services and yield the highest productivity per mile of all permanent routes. The Yellow and Green Routes are the core routes in the system and have the lowest productivity in terms of passenger boardings per mile. The Brown Route provides service primarily between Valparaiso University, Ivy Tech, and shopping/entertainment locations in the City of Valparaiso. The number of boardings per mile on the Brown Route are similar to that of the Yellow and Green Routes. The following exhibit provides a summary of ridership by route and revenue mile.

Exhibit 47: V-Line Route Summary

Route	Annual Revenue Miles (Estimated)	Annual Passenger Boardings	Boardings per Revenue Mile
Yellow	52,280	40,551	1.30
Green	57,860	46,254	1.25
Brown	37,417	26,764	1.40
Orange	25,198	6,201	4.06
Red	14,155	3,813	3.71
Purple	706	139	5.07
Total	189,180	123,722	1.53

* Annual revenue miles are based on actual miles July-Dec. 2013

Ridership

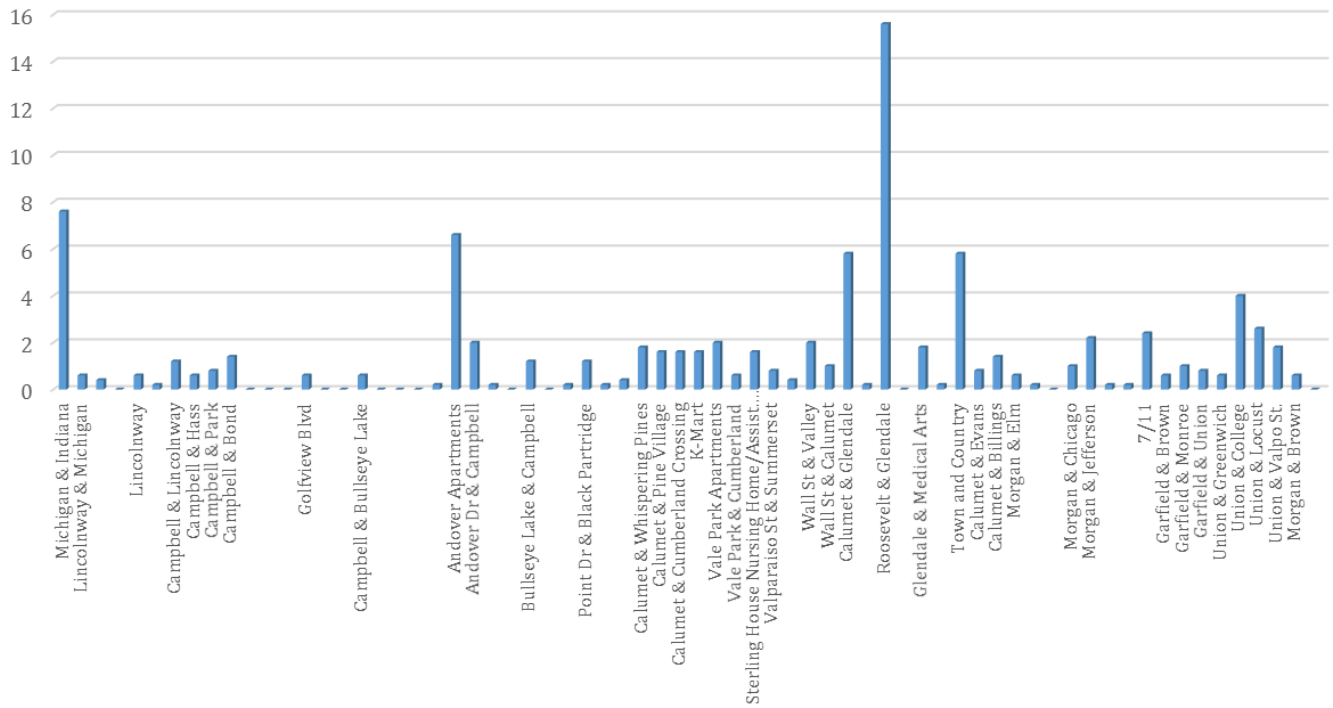
Daily boardings at each stop range from zero to 163. The distribution of daily ridership by route and stop is displayed in the following section. Exhibit 45 illustrates the top four stops on each route and the number of passengers that boarded or alighted per day.

Exhibit 48: Most Active Bus Stops by Route

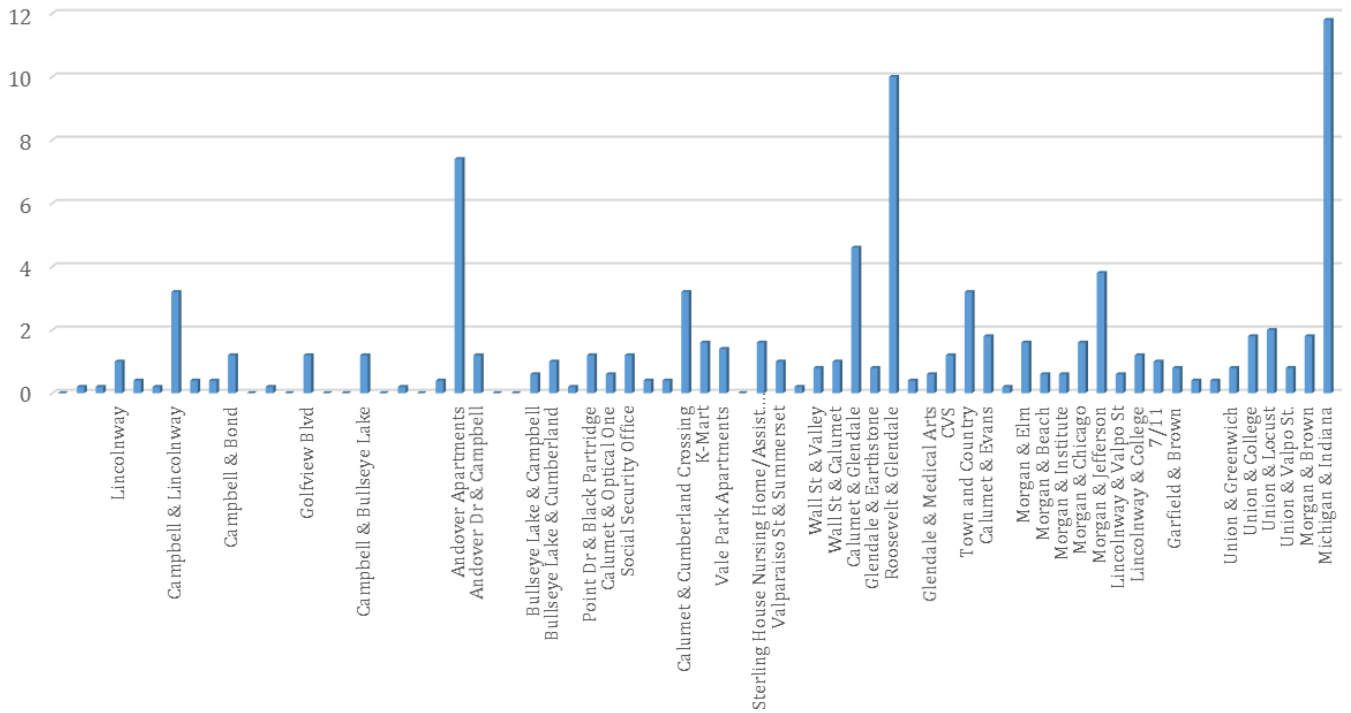
Route	Most Active Bus Stops	
Yellow	Calumet & Glendale (54)	Andover Apartments (75)
	Indiana & Michigan (100)	Roosevelt & Glendale (135)
Green	Sturdy & Chicago (78)	Heart Center (144)
	Wal-Mart (117)	Indiana & Michigan (159)
Brown	Laporte & Legend (56)	Wal-Mart (163)
	Target (159)	VU Student Union (289)
Red	Study & Chicago (7)	Wal-Mart (14)
	Calumet & Glendale (10)	VU Student Union (29)
Orange	LaPorte & Teresa (13)	Dunes Station (144)
	VU Student Union (112)	Lincolnway & Marks (5)
Purple	K-Mart & Vale Park (5)	Sturdy & Chicago (9)
	Vale Park & Lake Point/Covington (6)	VU Student Union (37)

WEEKDAY BOARDINGS AND ALIGHTINGS

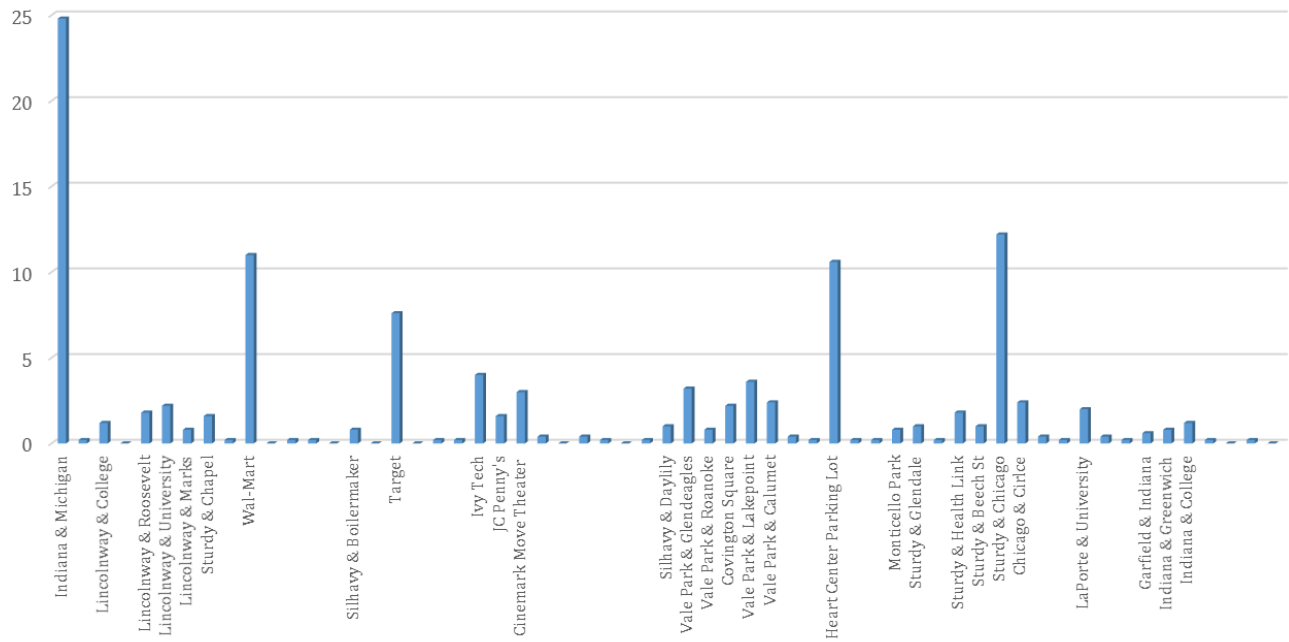
Yellow Weekday Boardings



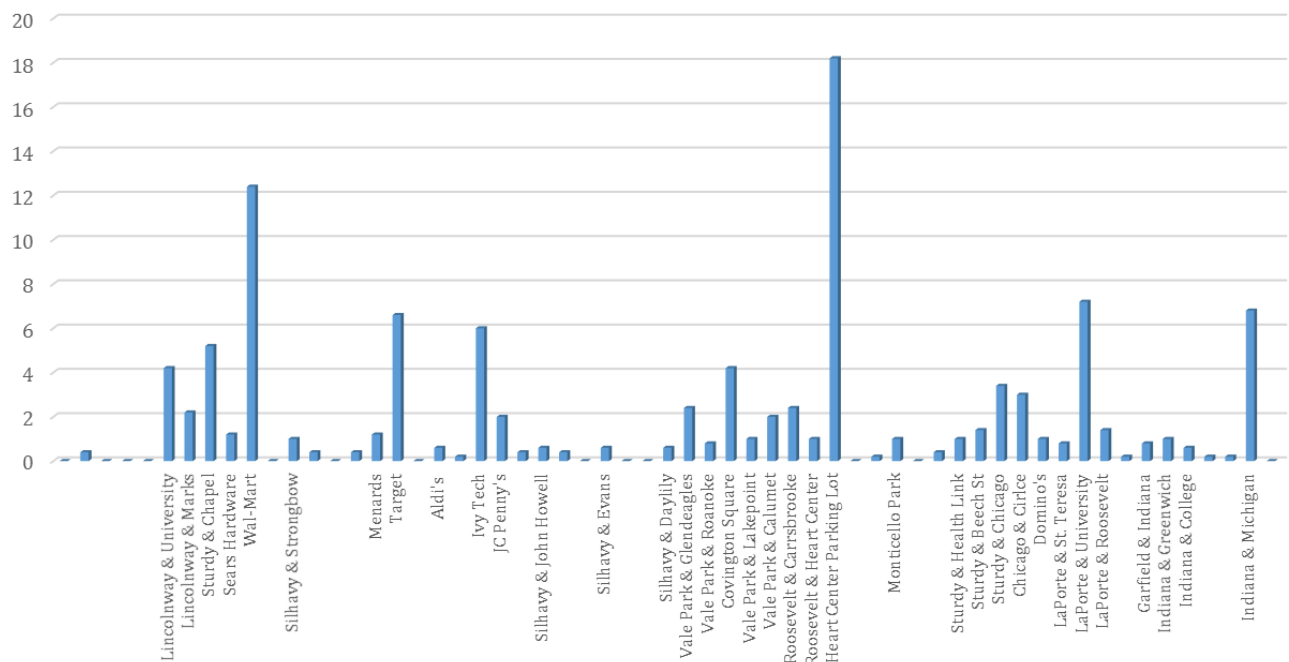
Yellow Weekday Alightings

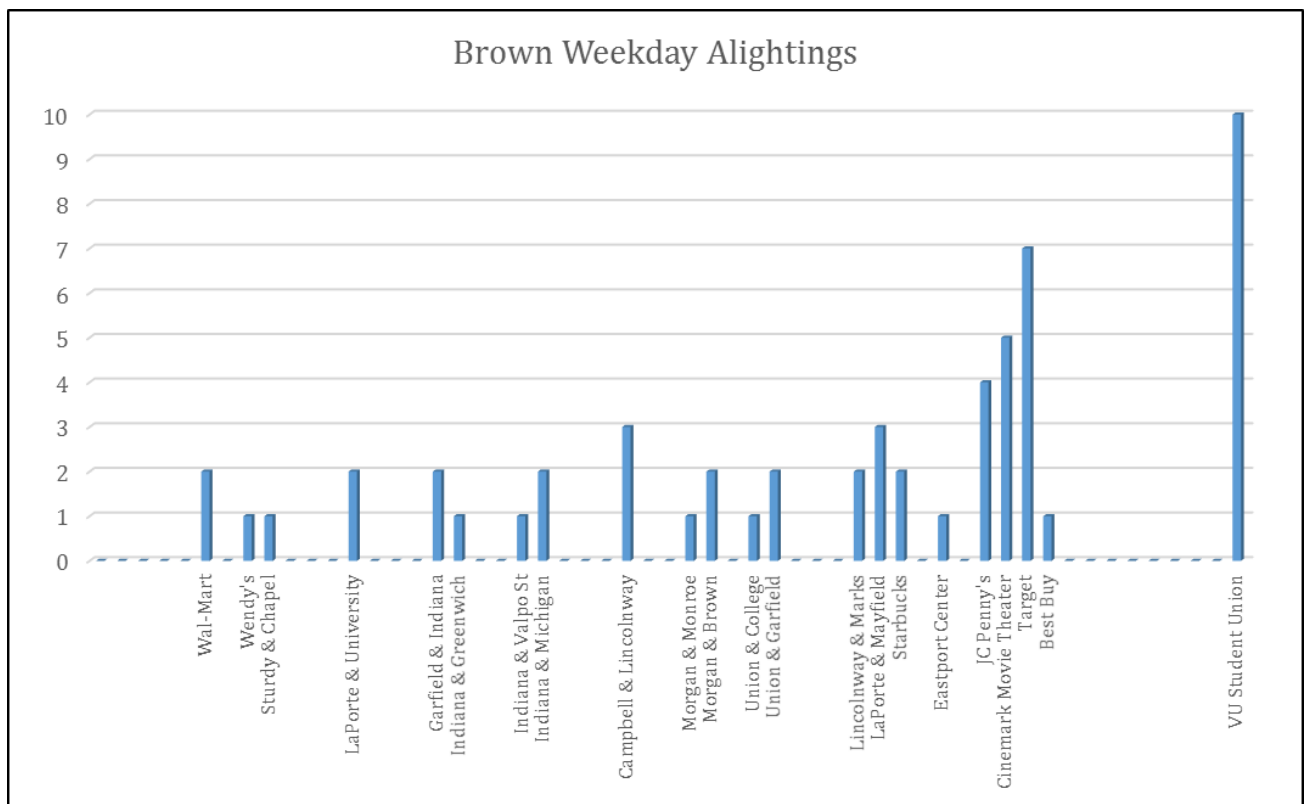
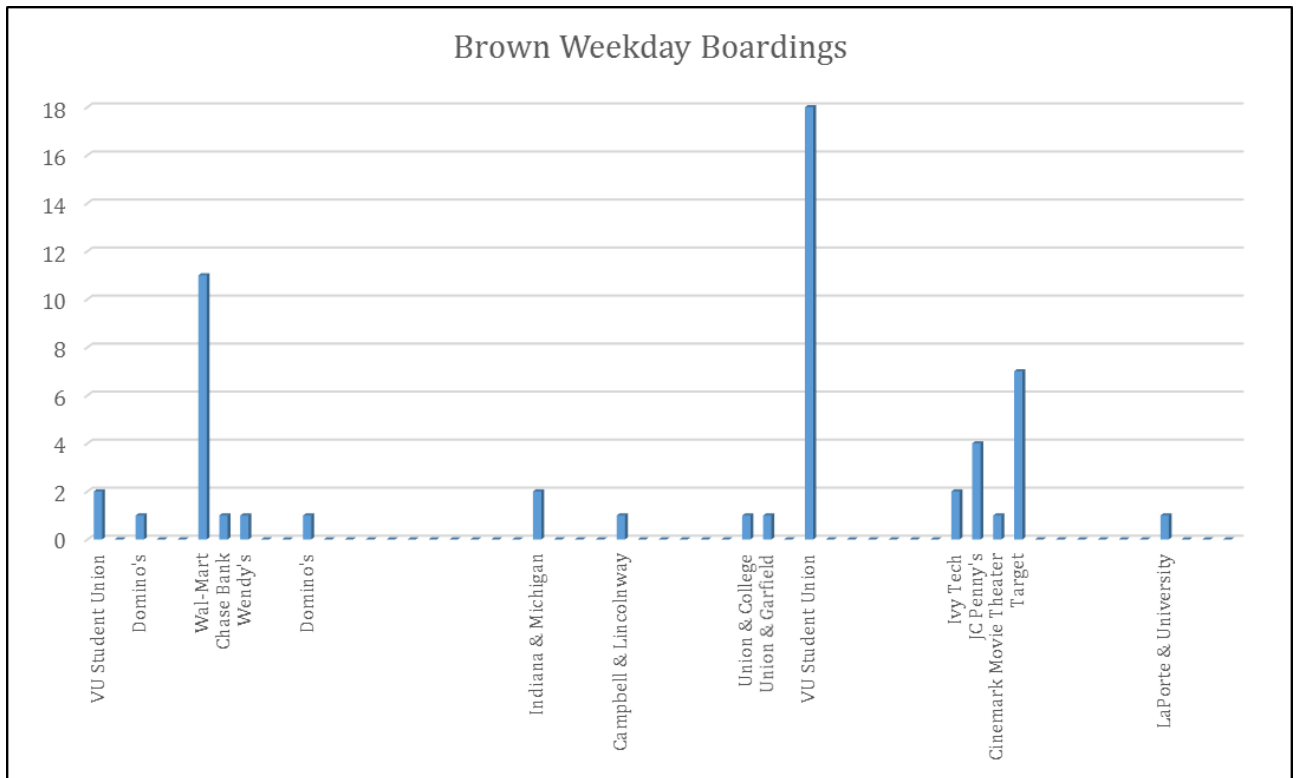


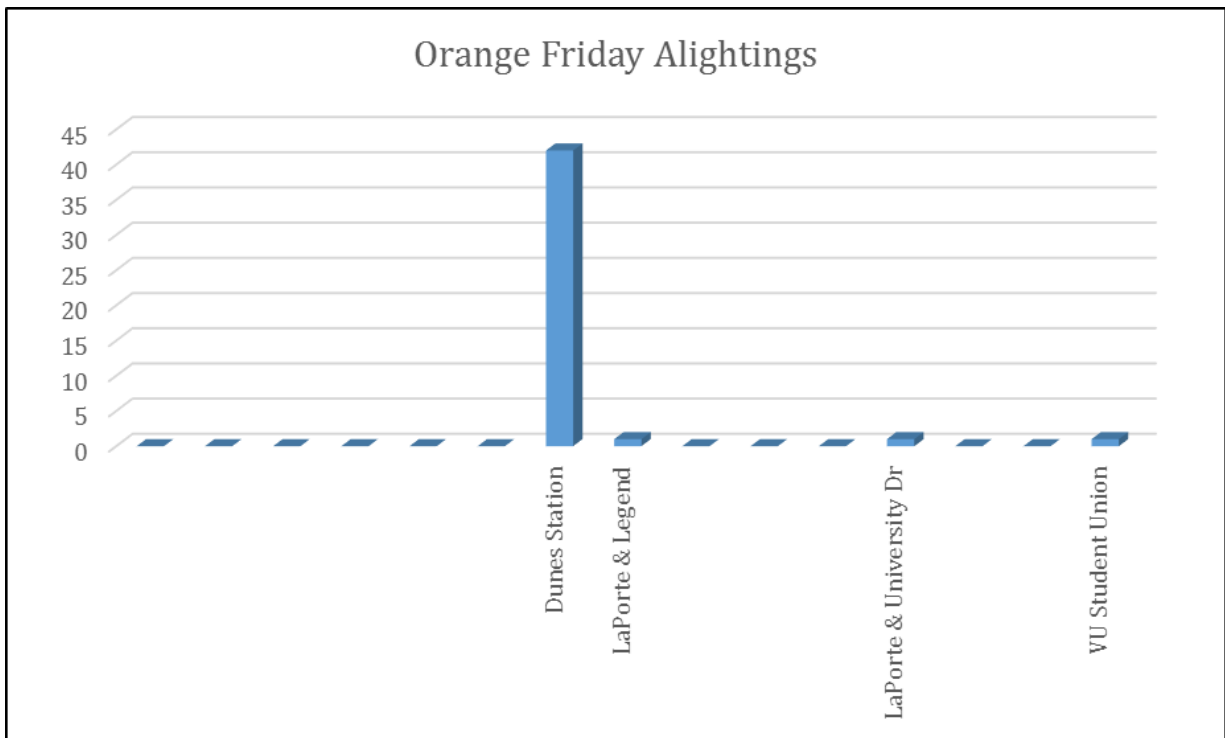
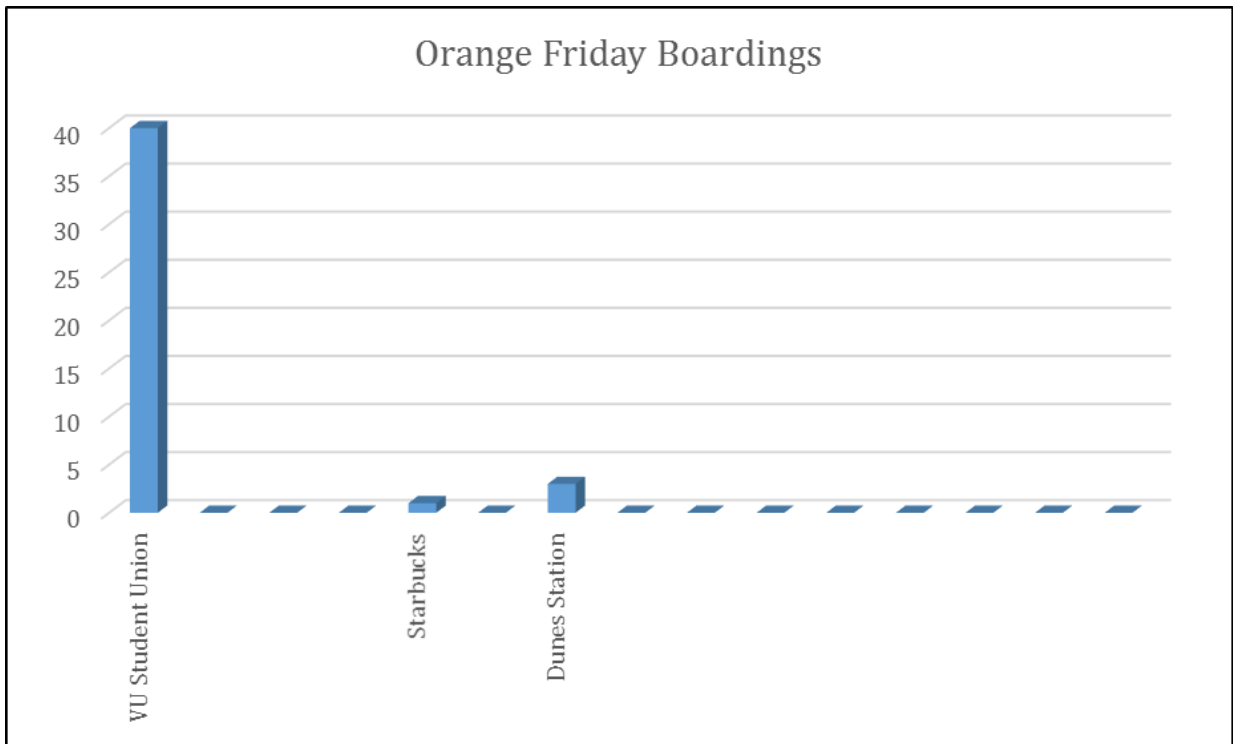
Green Weekday Boardings

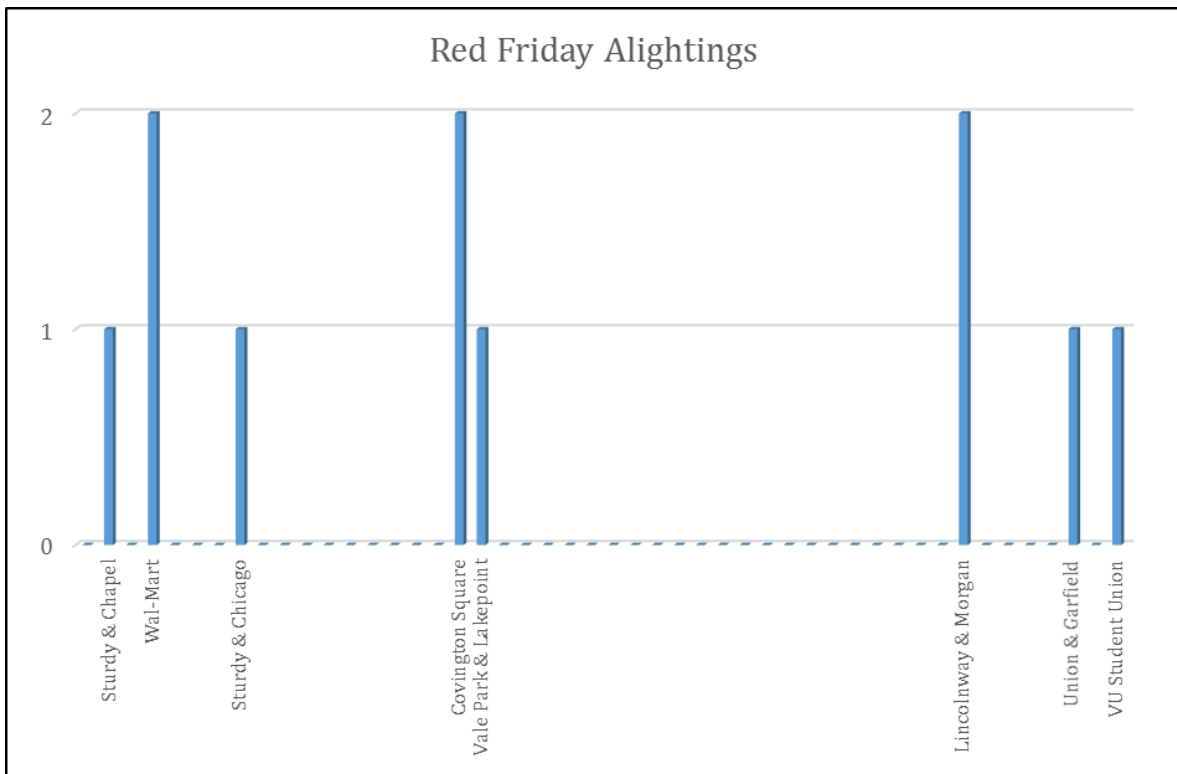
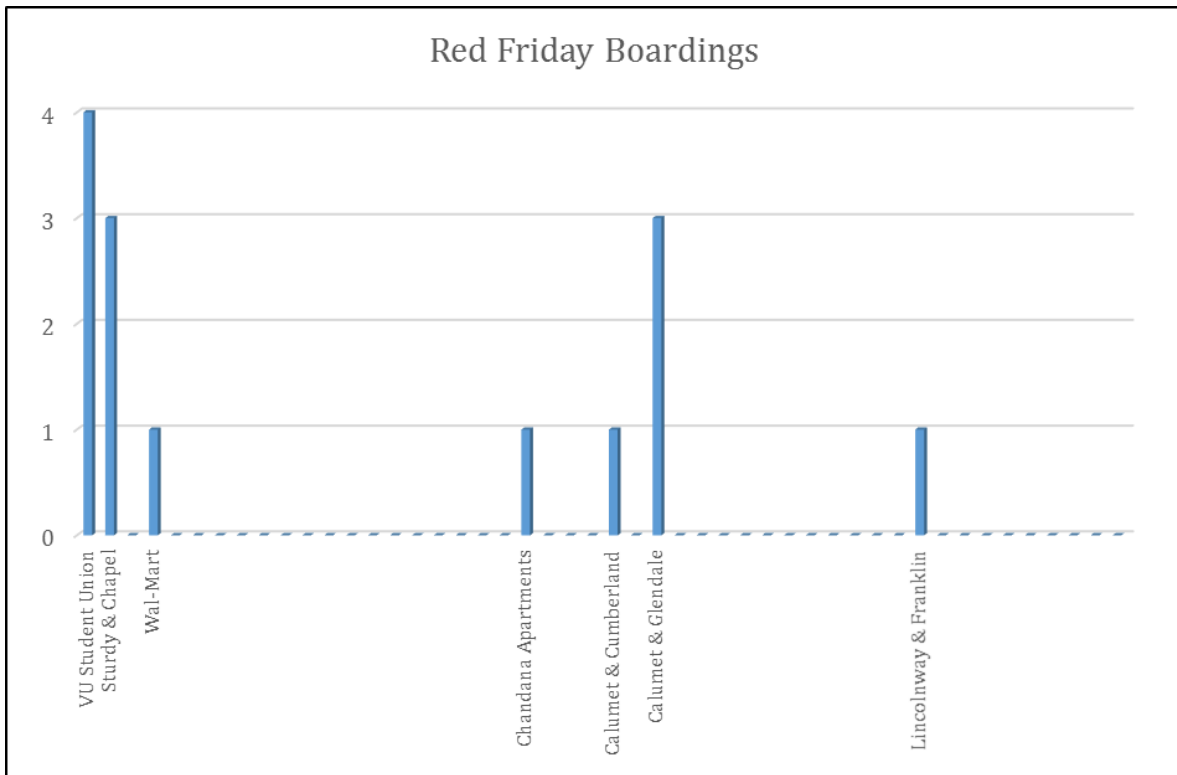


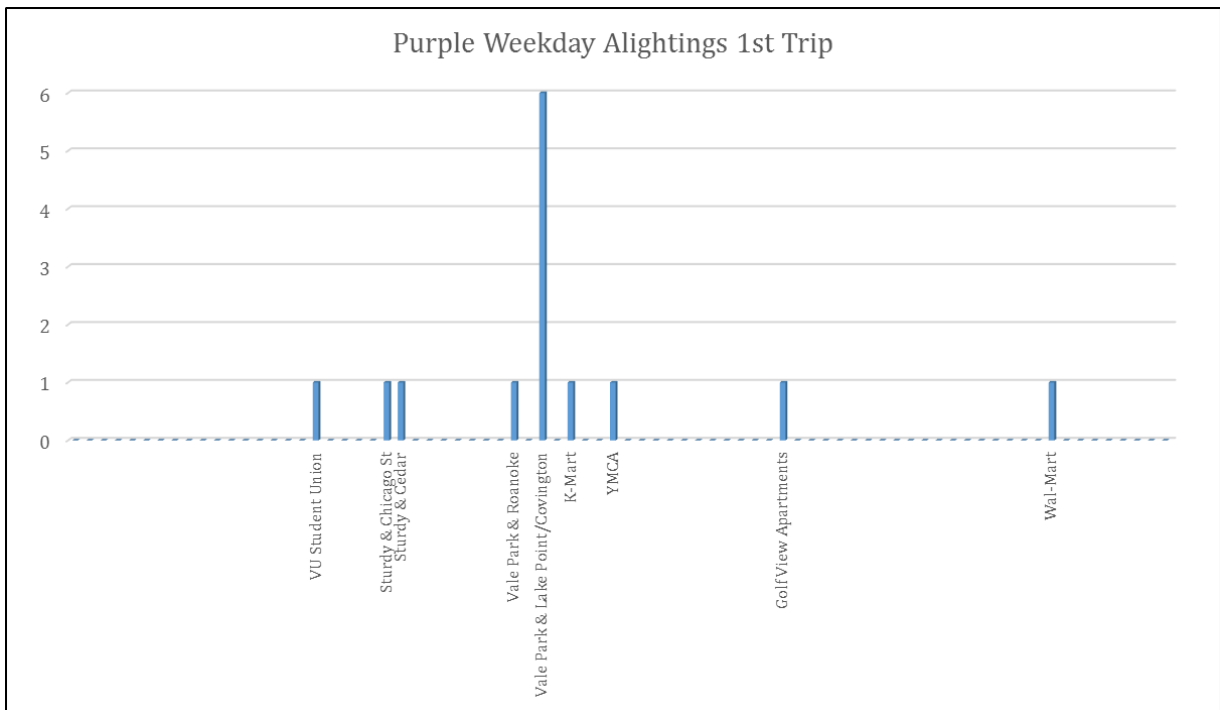
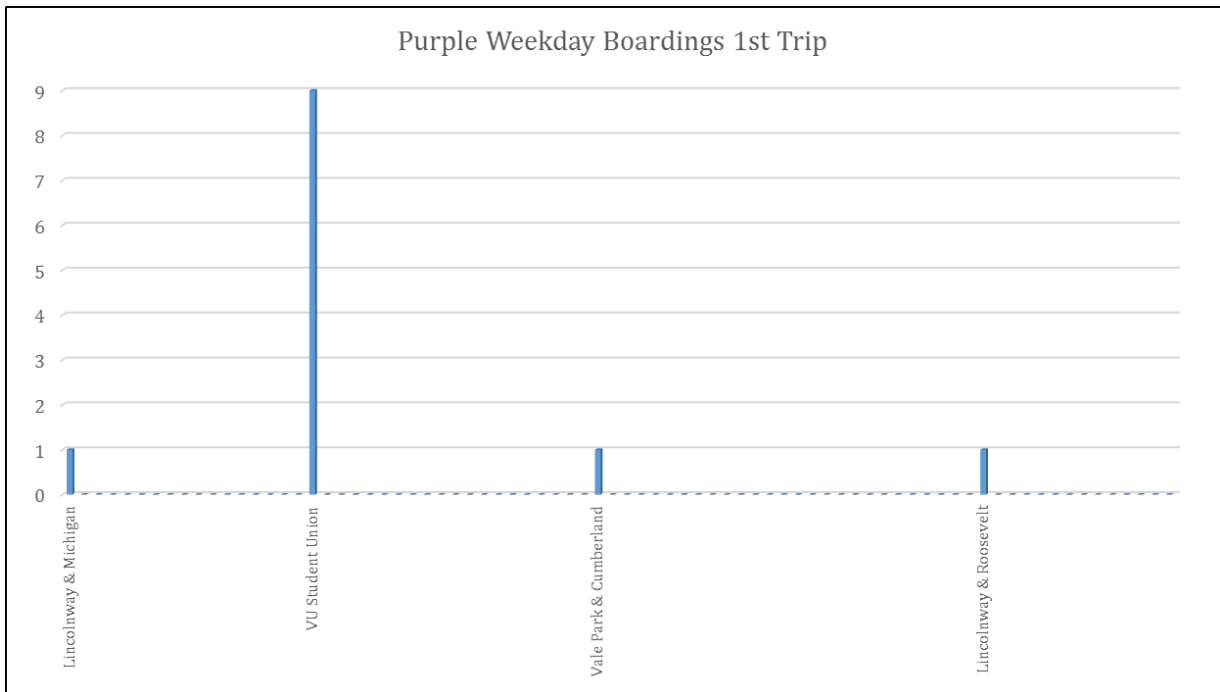
Green Weekday Alightings

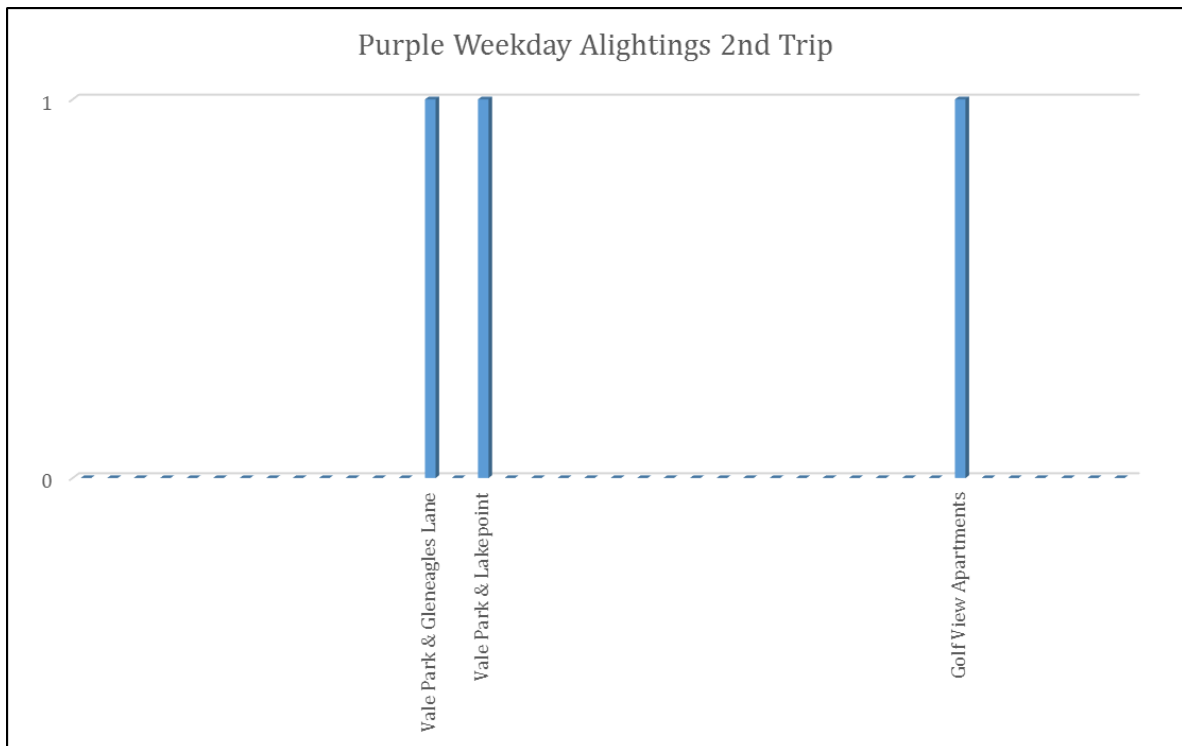
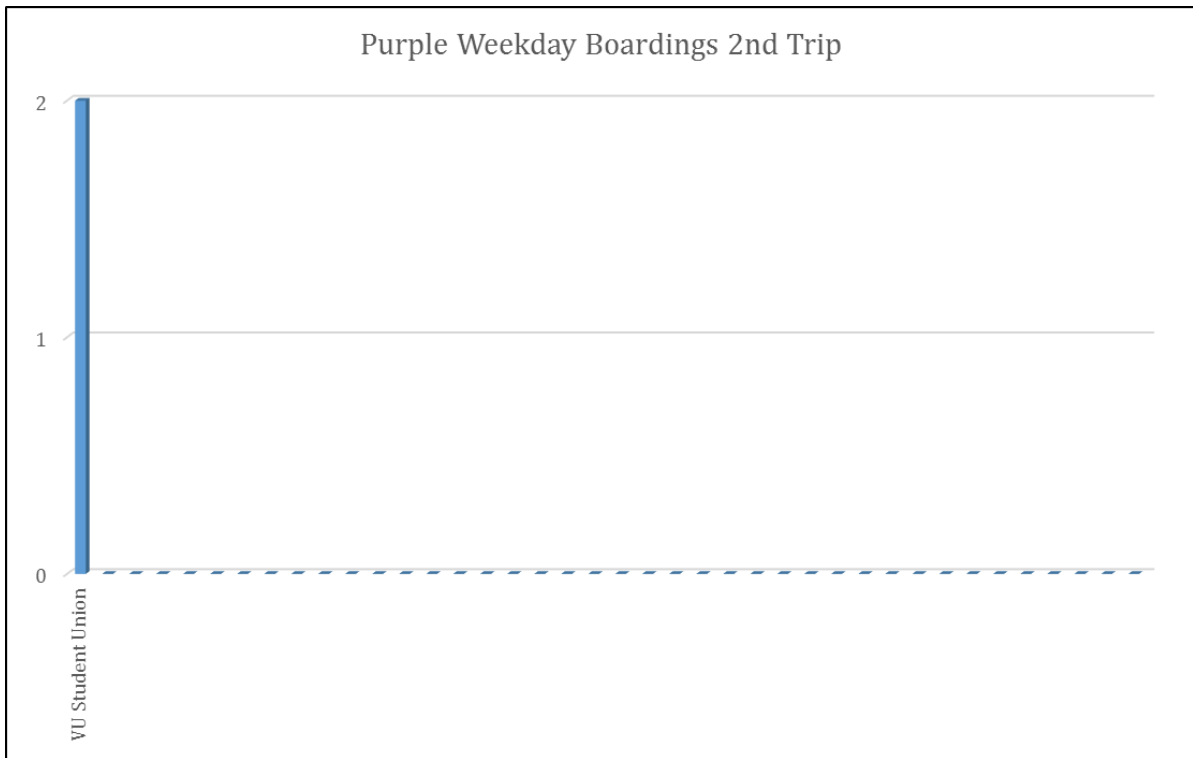




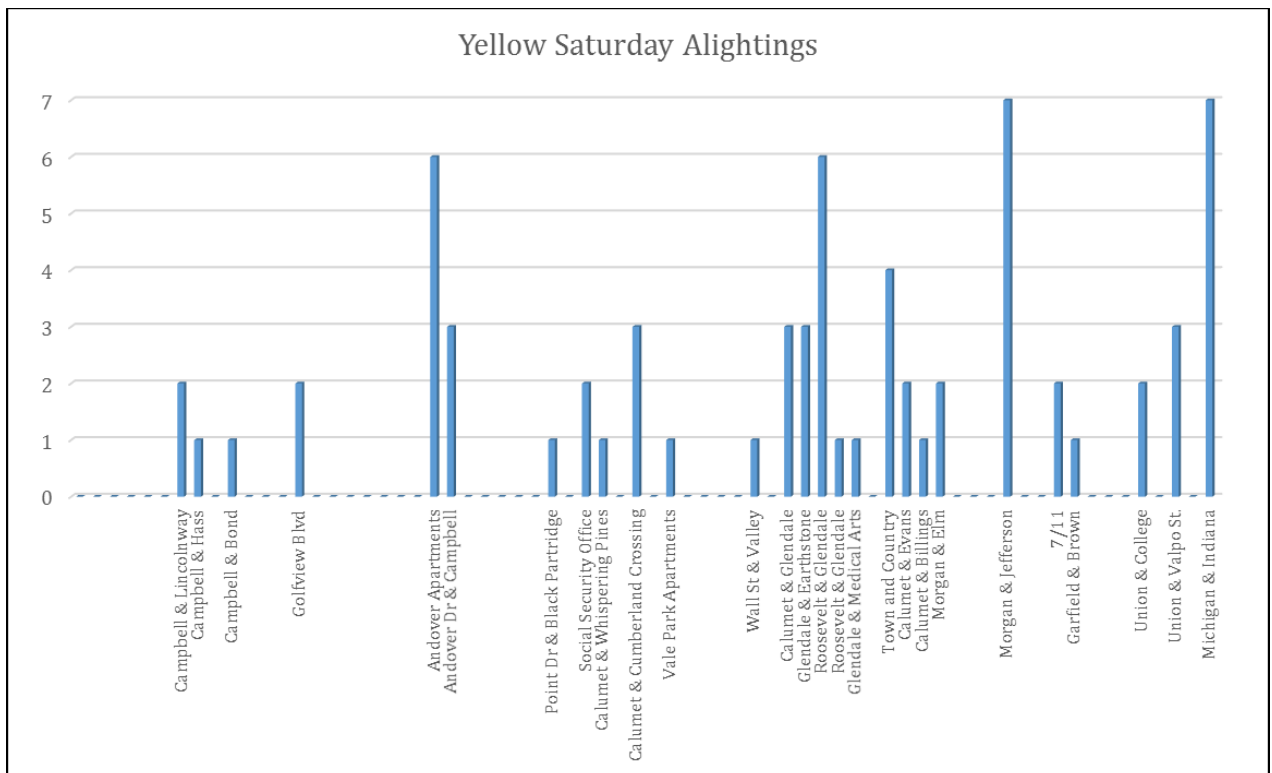
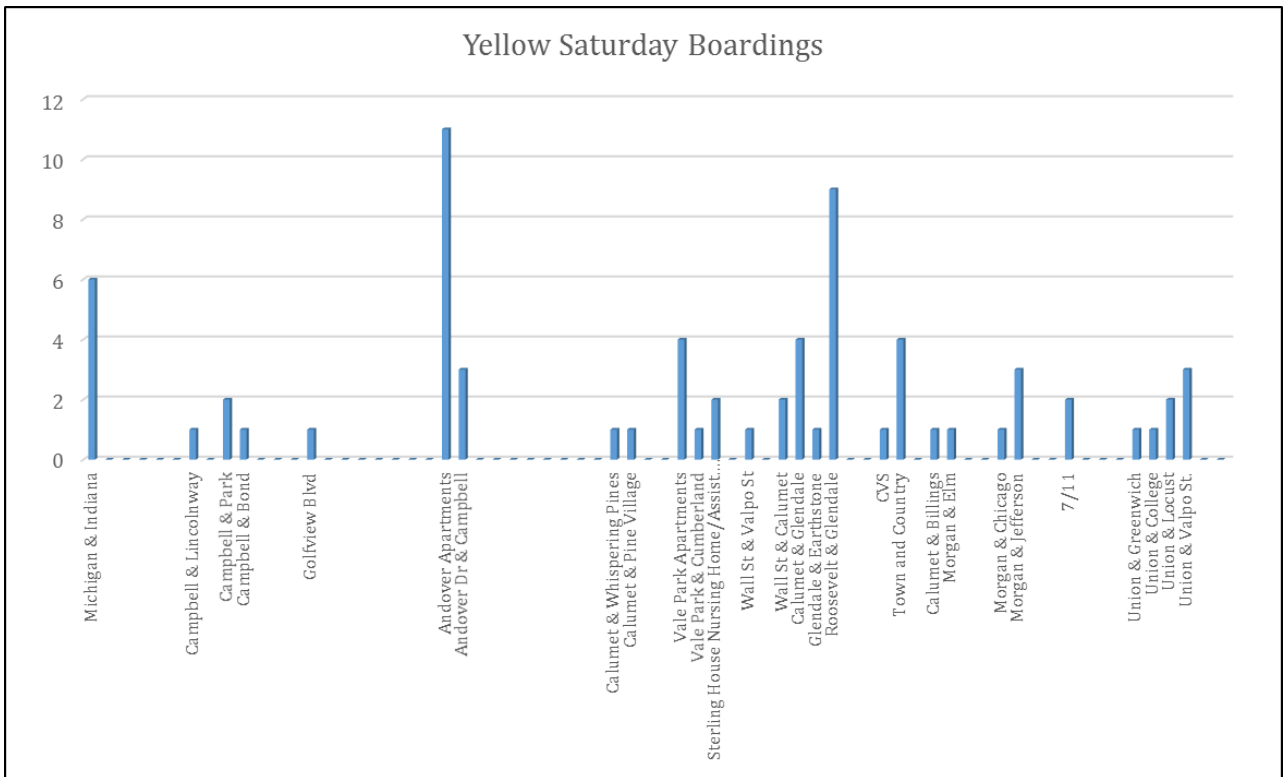


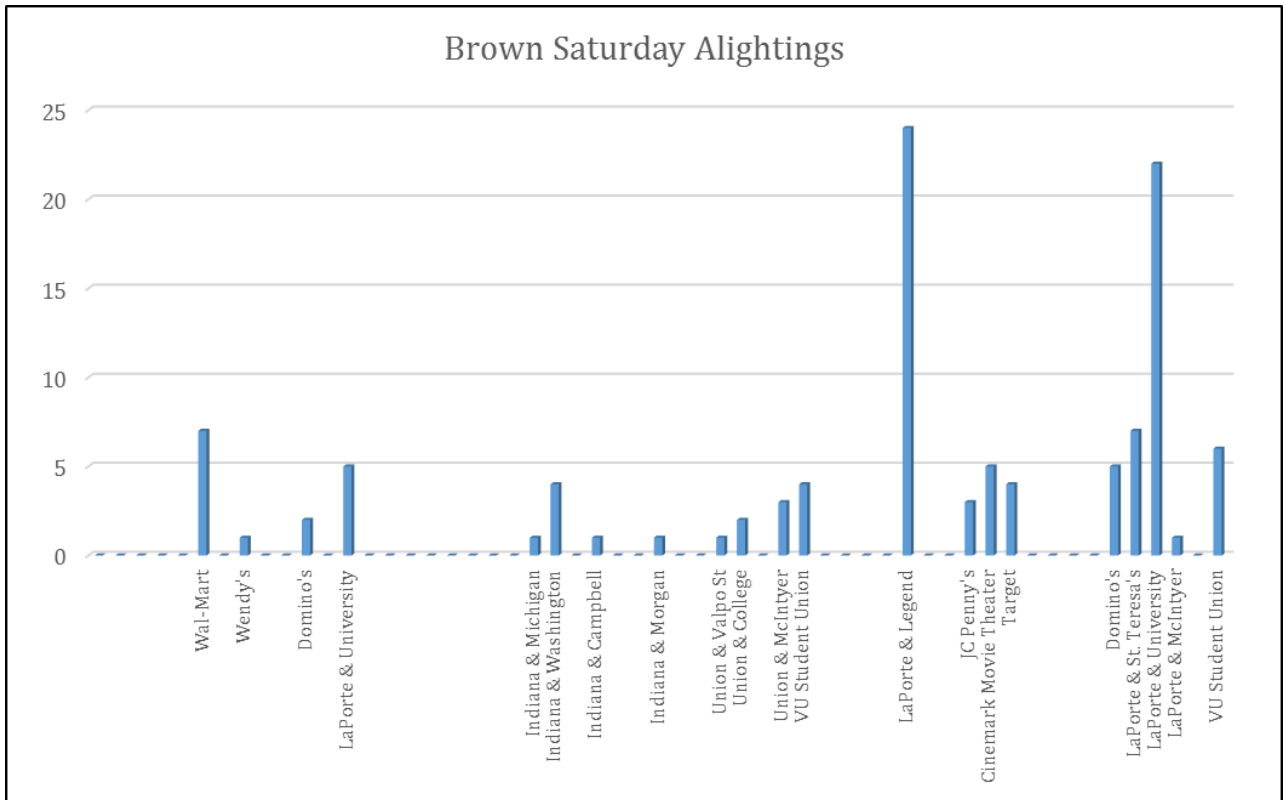
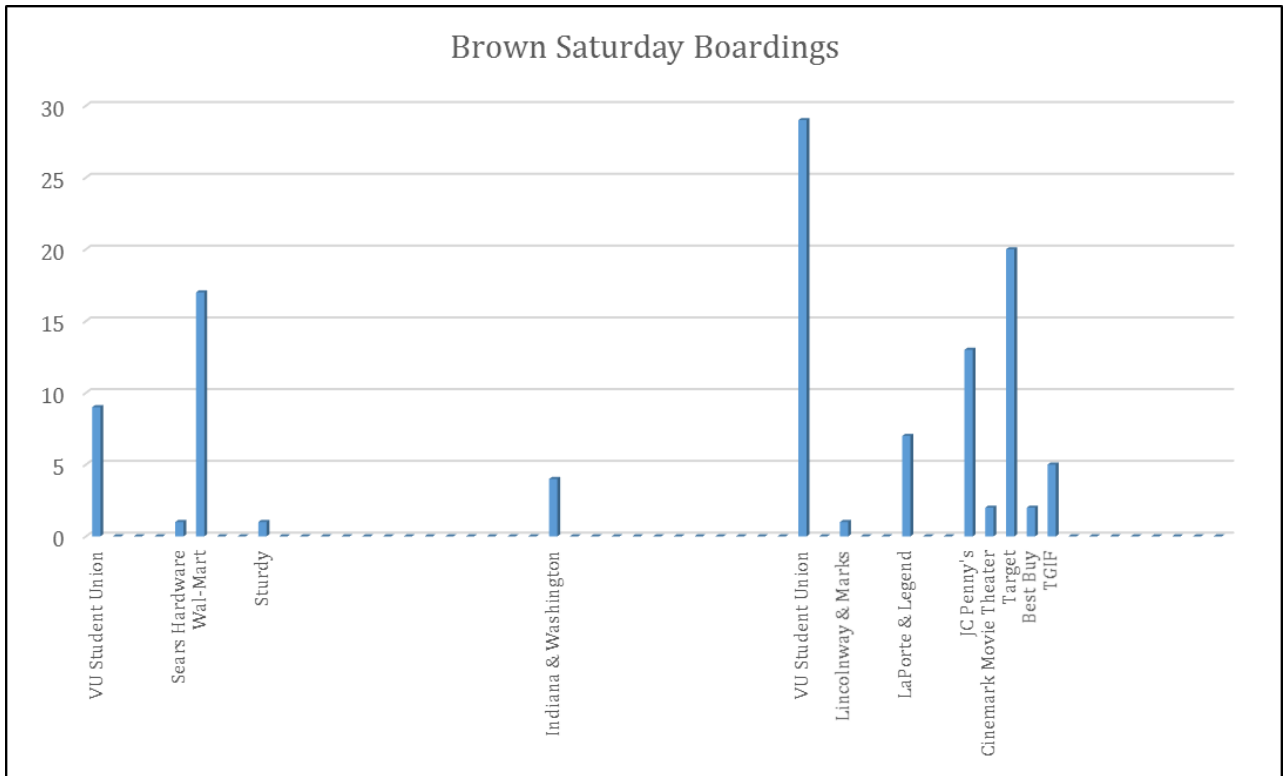


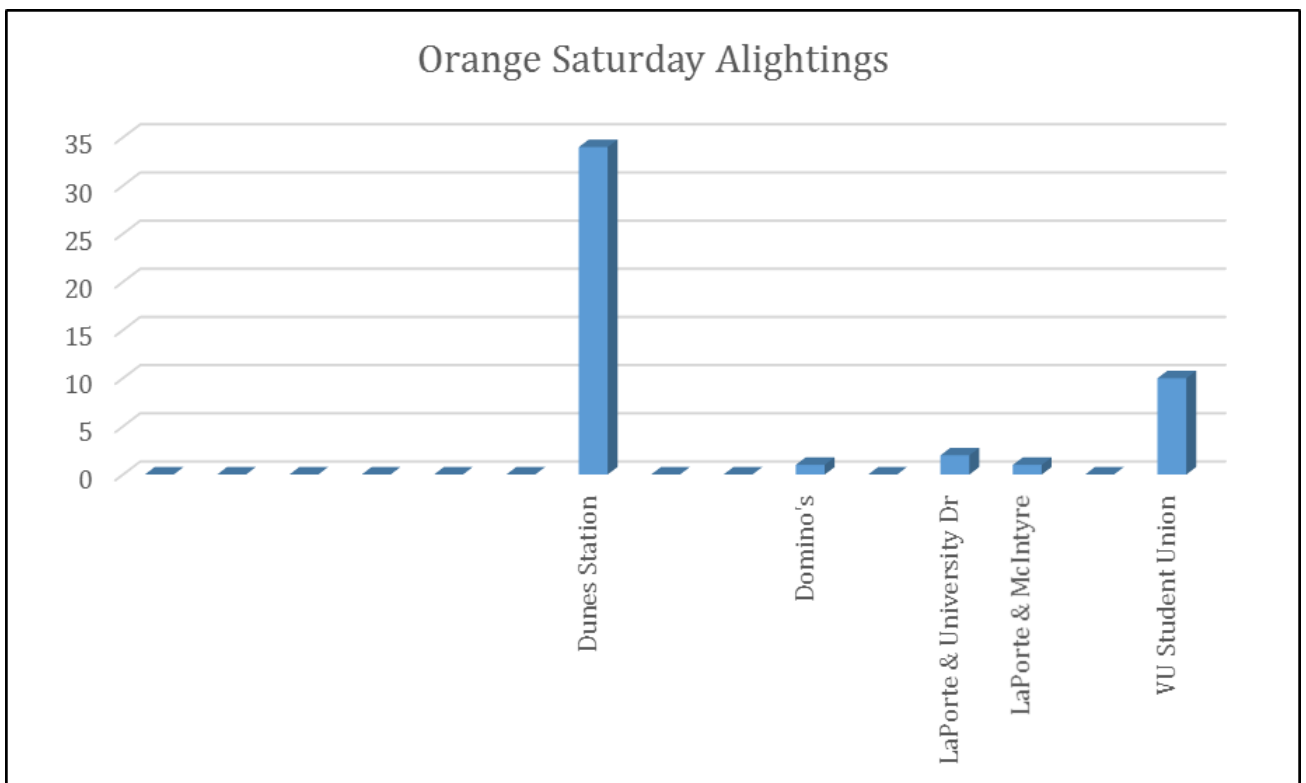
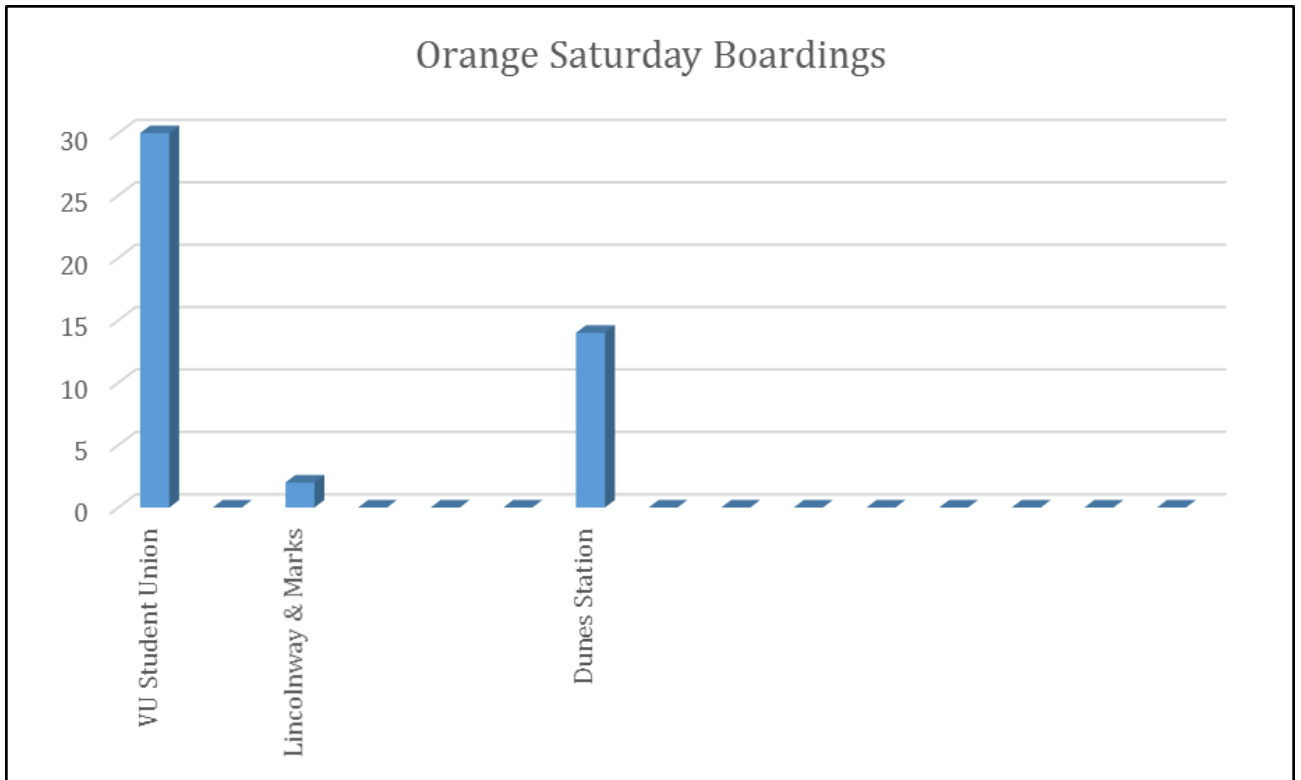


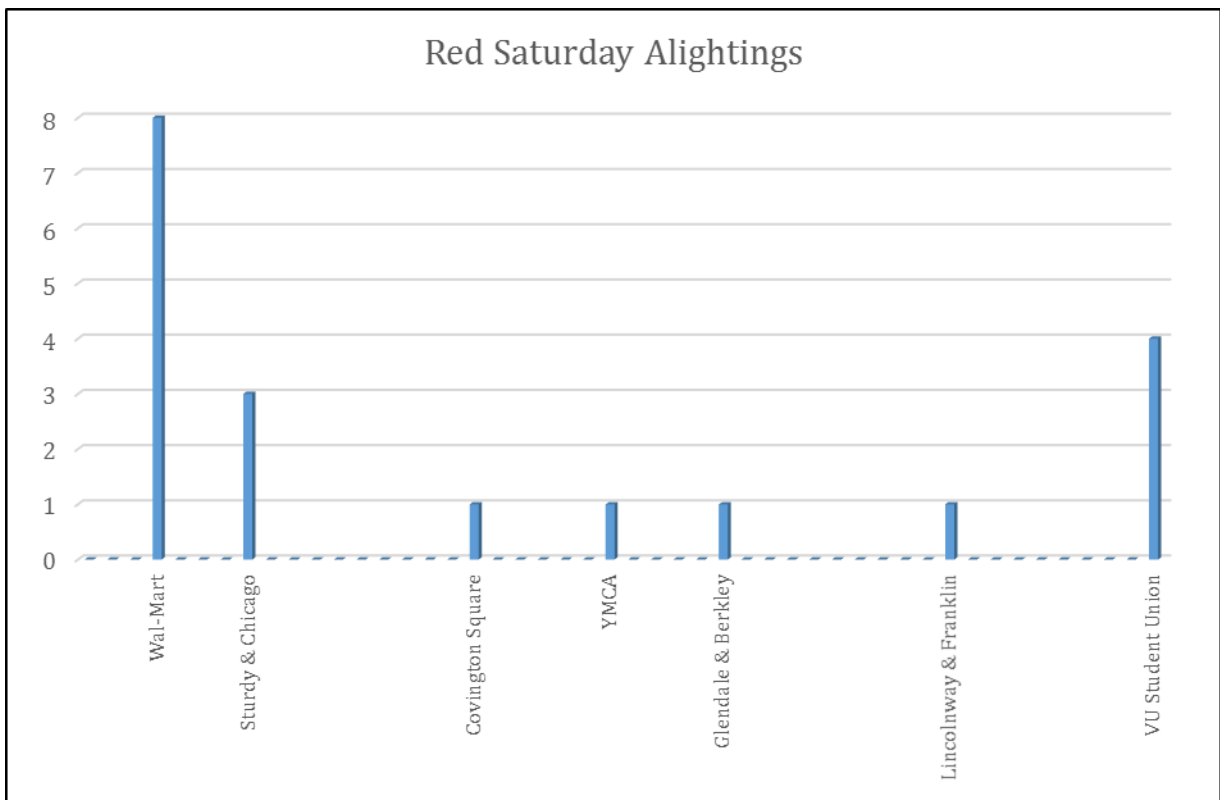
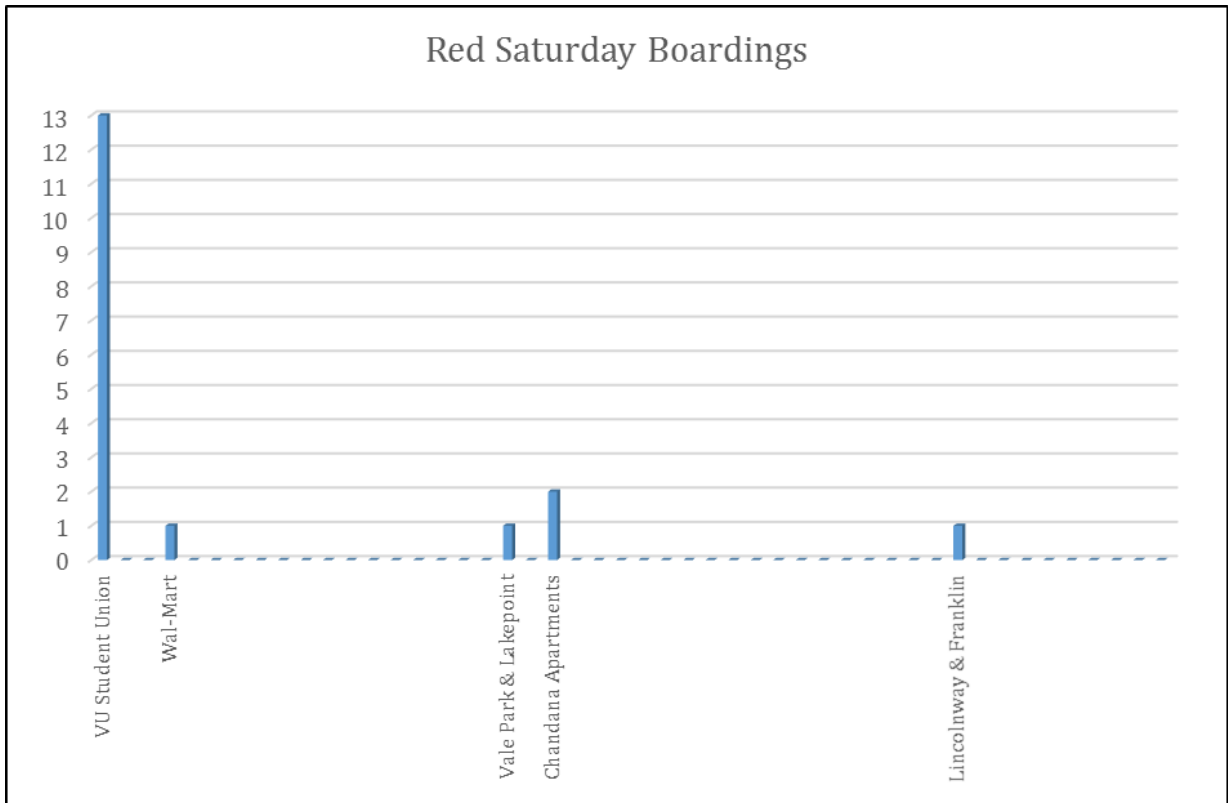


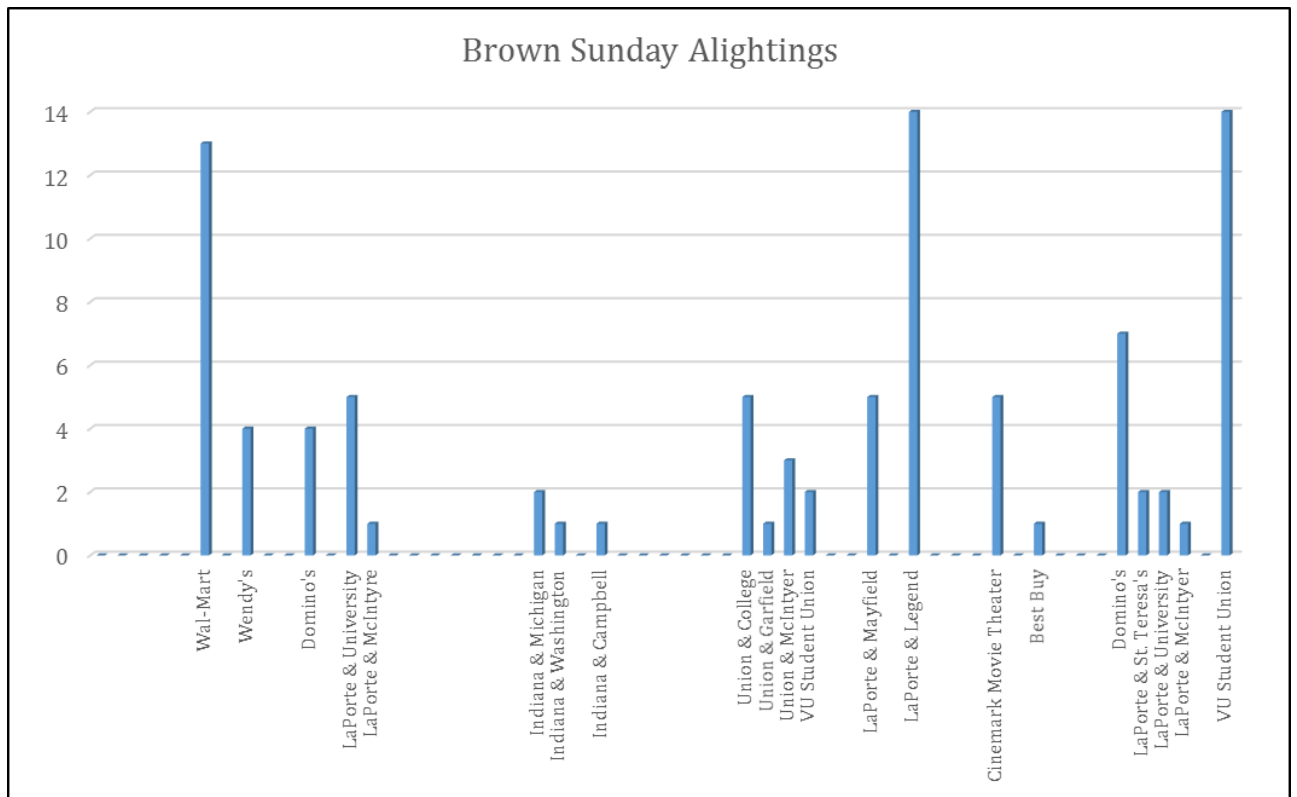
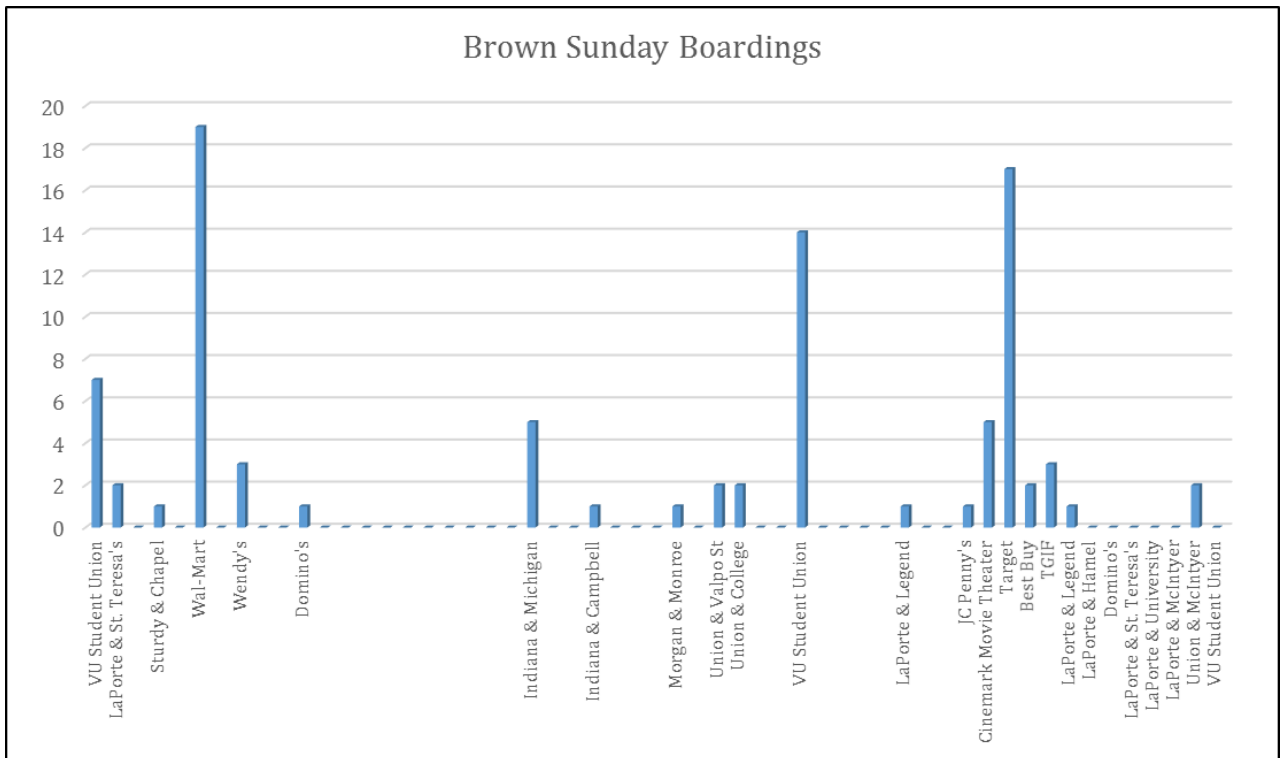
WEEKEND BOARDINGS AND ALIGHTINGS

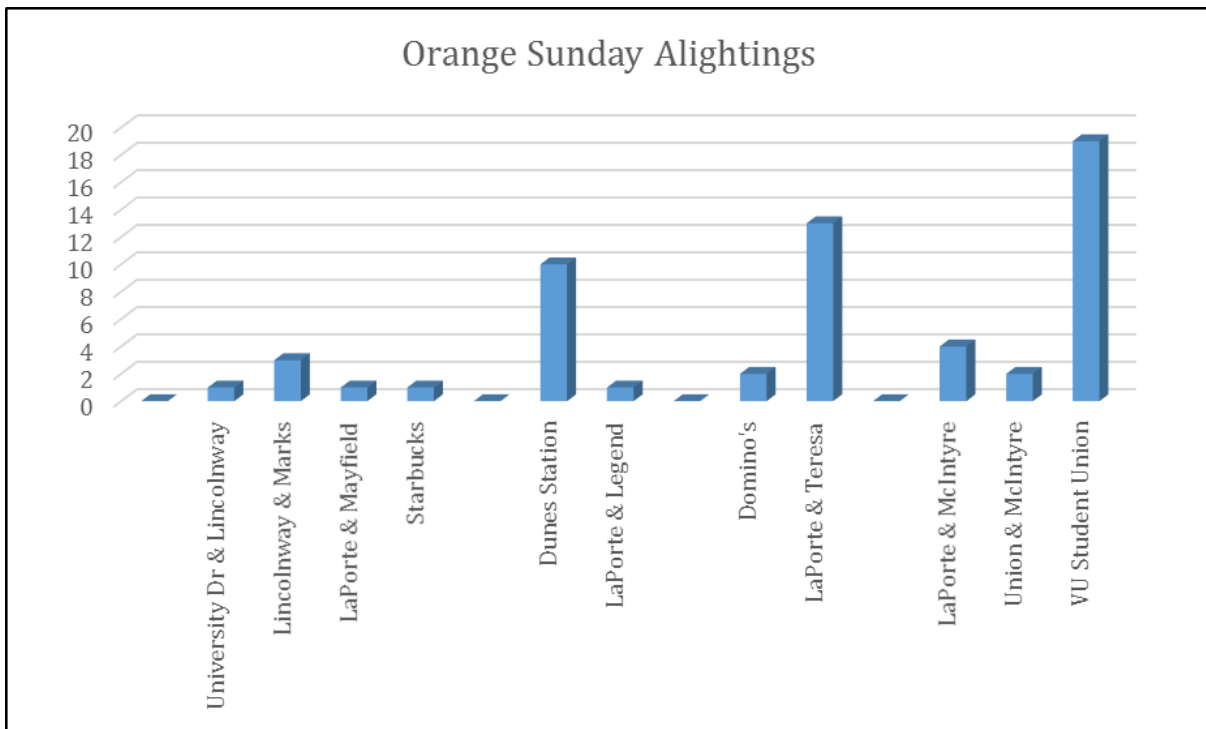
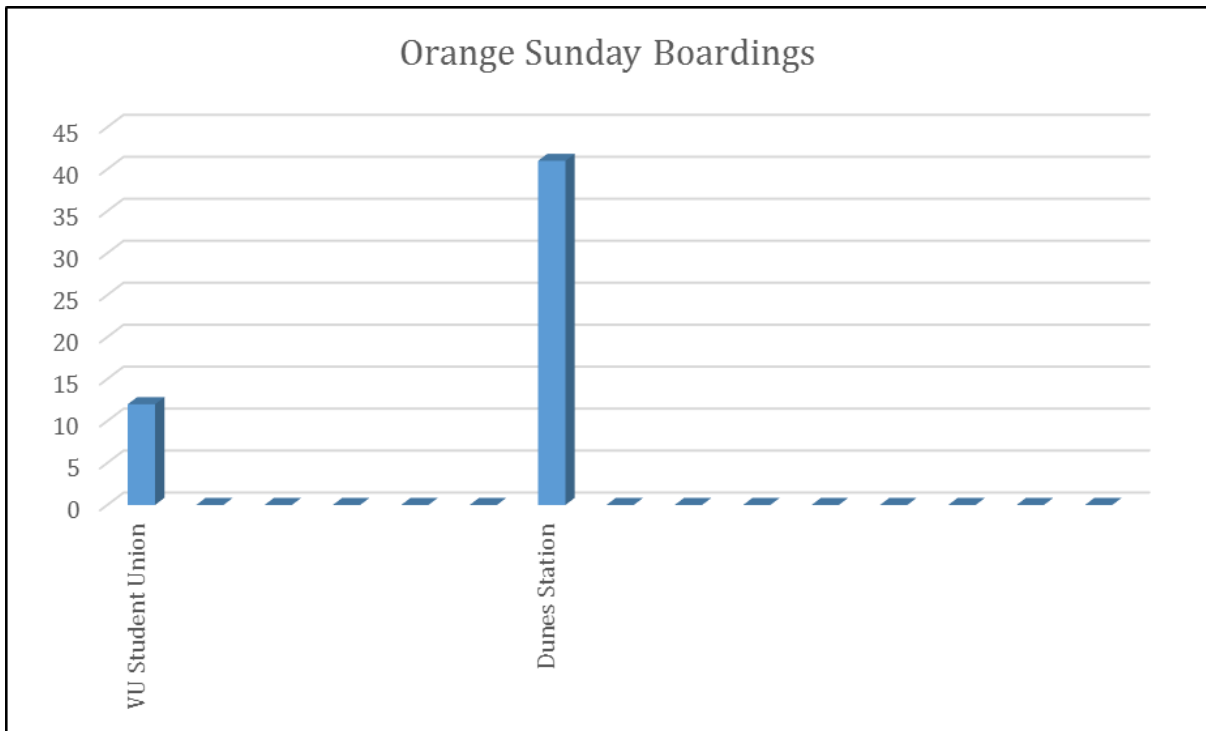


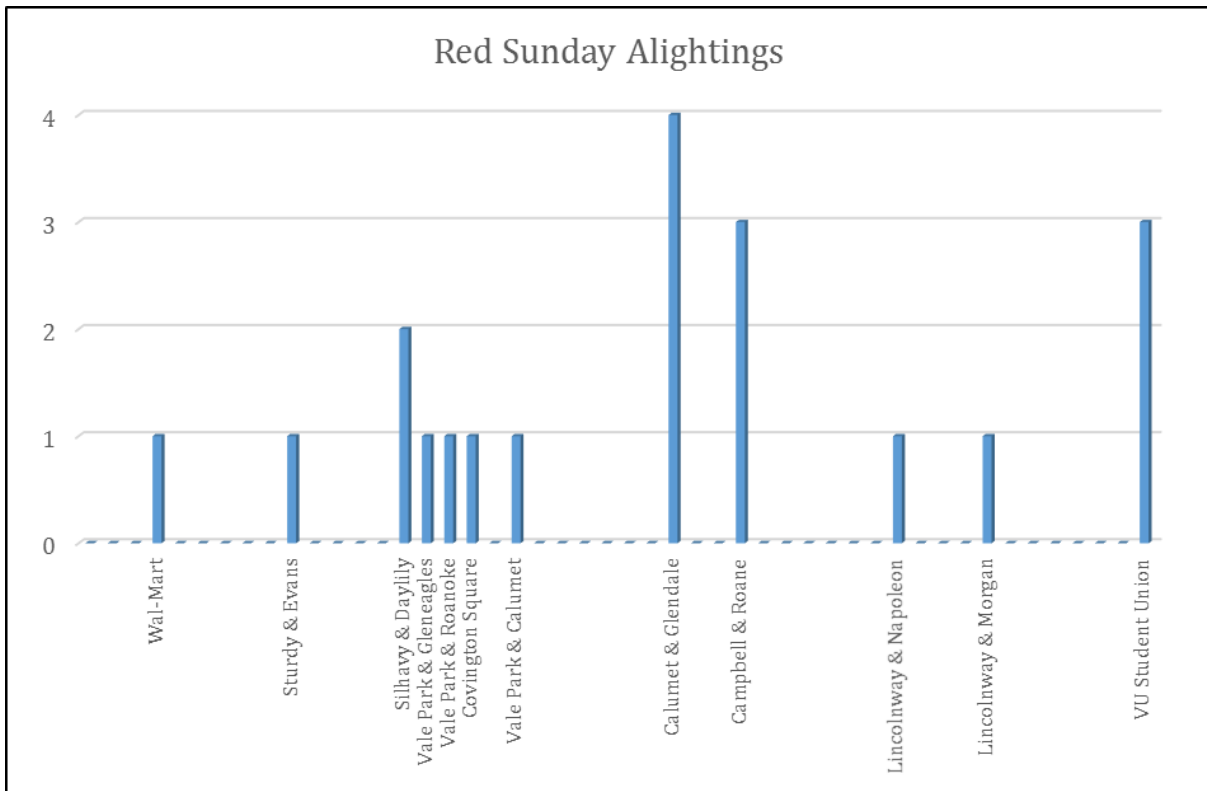
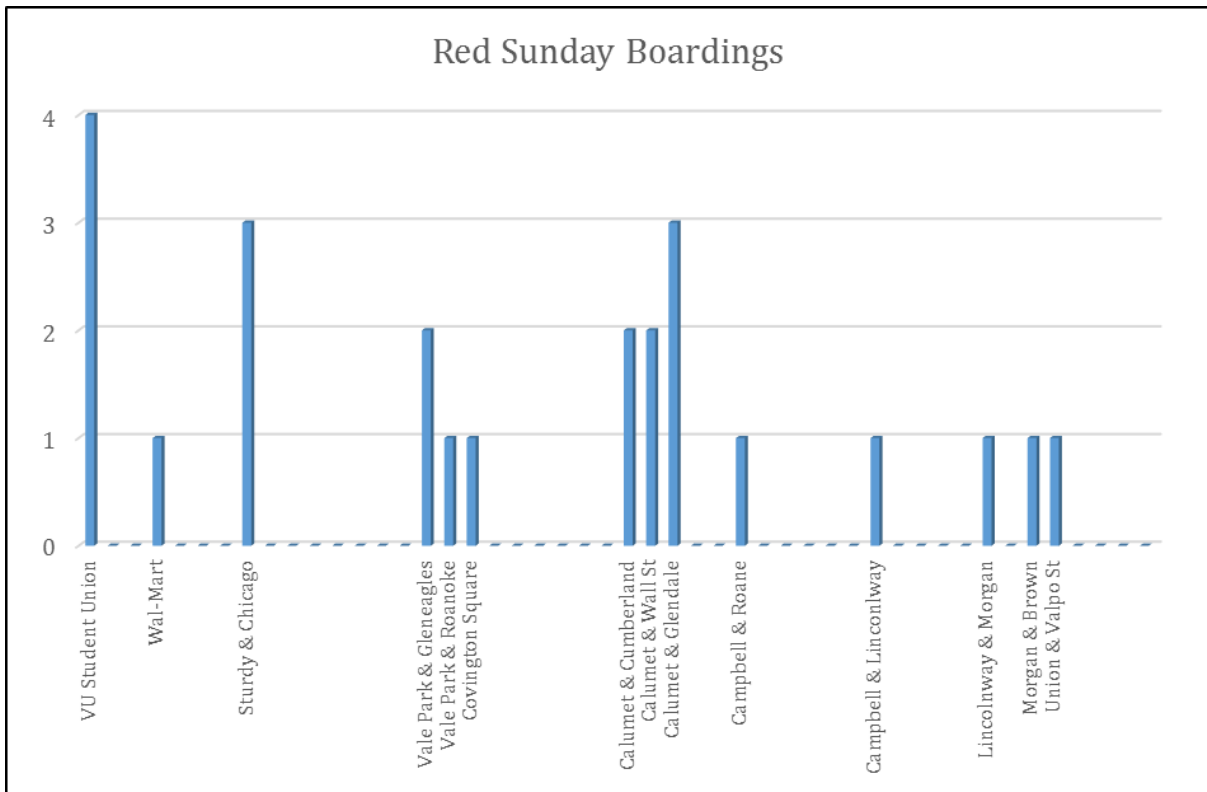












PRODUCTIVITY

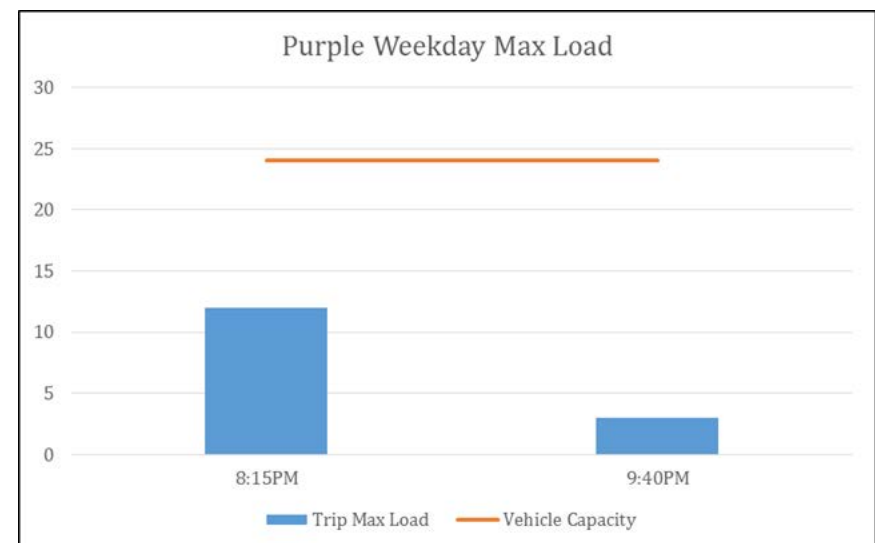
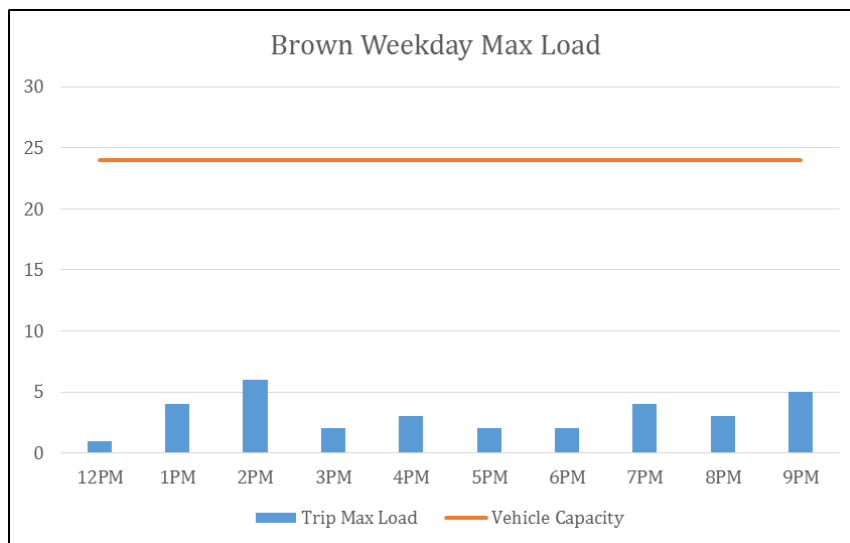
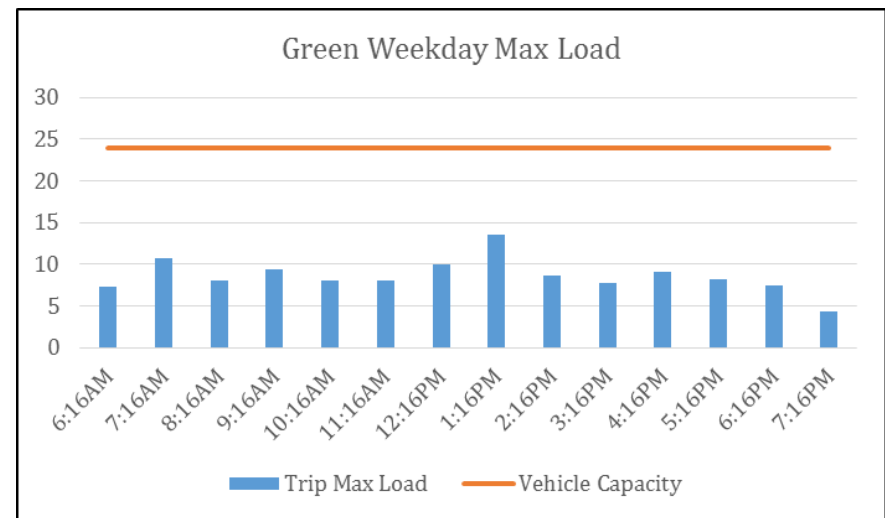
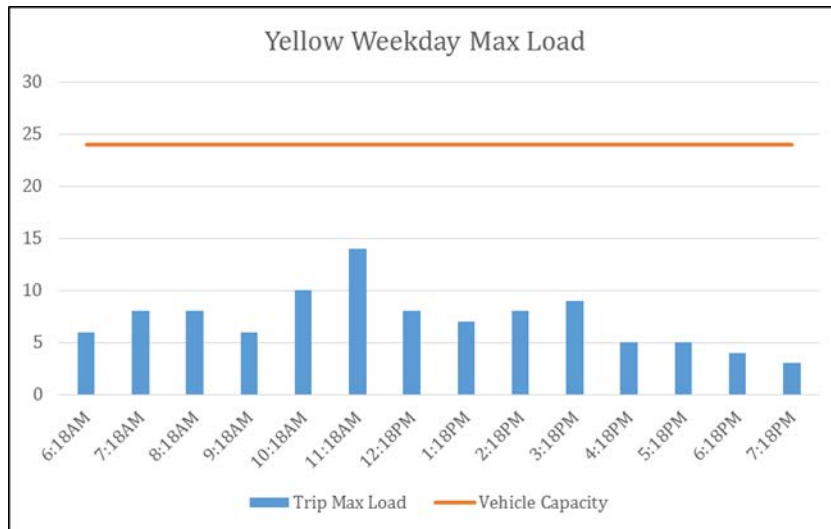
Boardings by revenue hour by route were at such a rate that the maximum vehicle capacity (25 passengers) was not exceeded or even approached during most hours of operation. The exception to this was the Orange Route Friday run at 2:20 PM during which time the vehicle capacity was exceeded by one passengers.

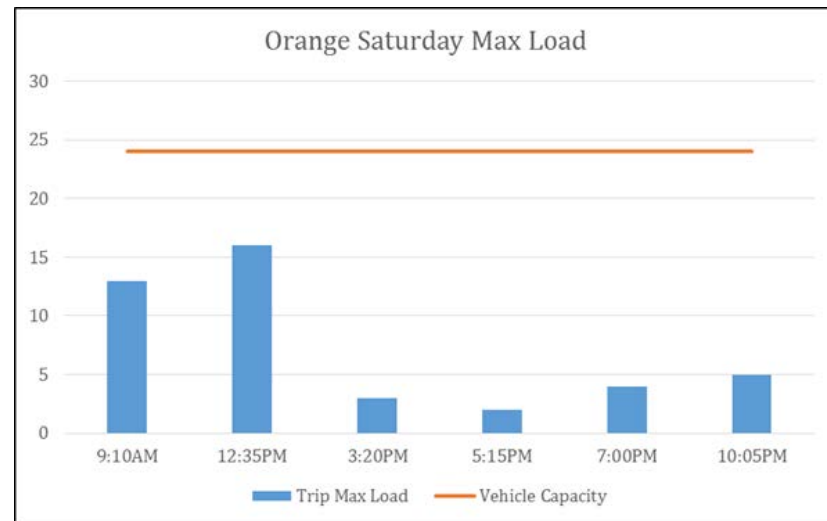
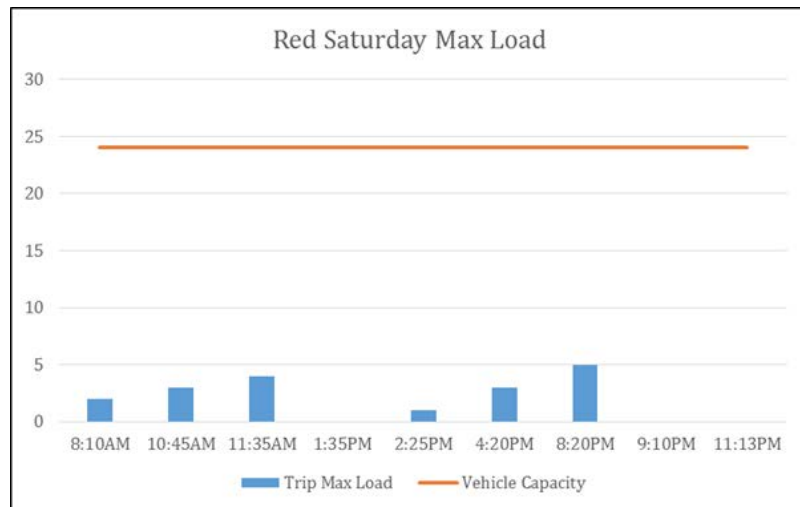
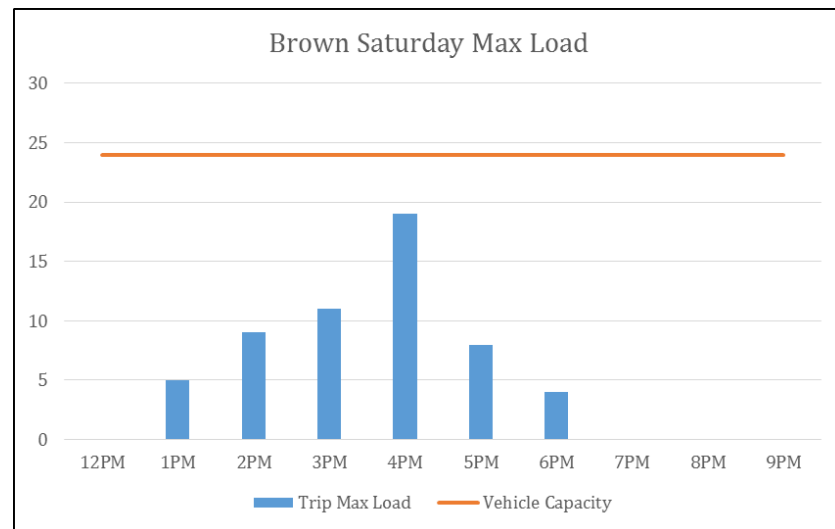
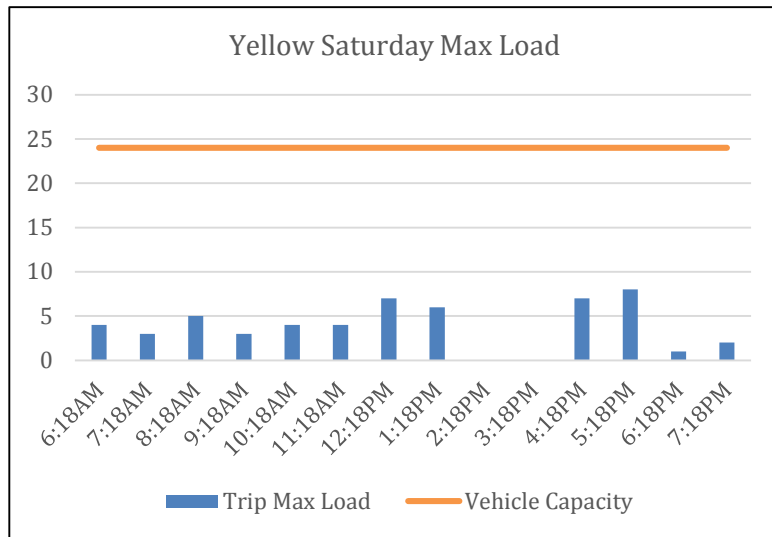
Vehicle seating capacity (16 ambulatory or 14 ambulatory plus 2 wheelchairs) was reached and/or exceeded on the Brown and Orange Routes. The following table provides a summary of boardings per revenue hour for each route. Exhibits on the following pages depict the actual boardings by hour for each route.²

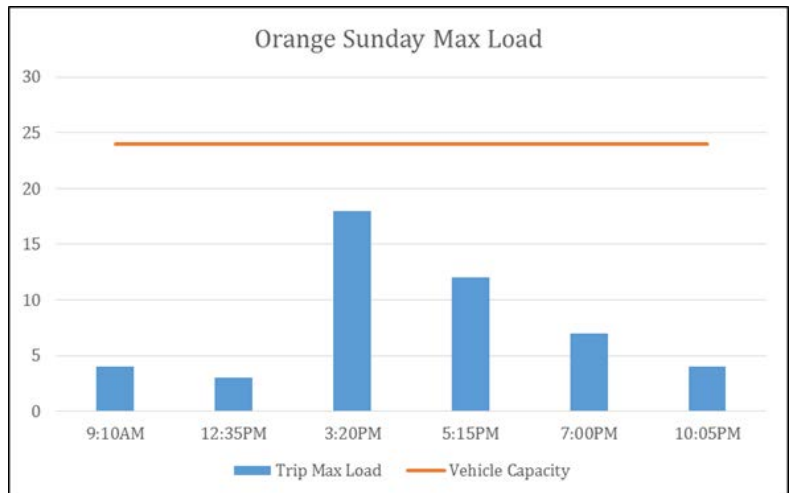
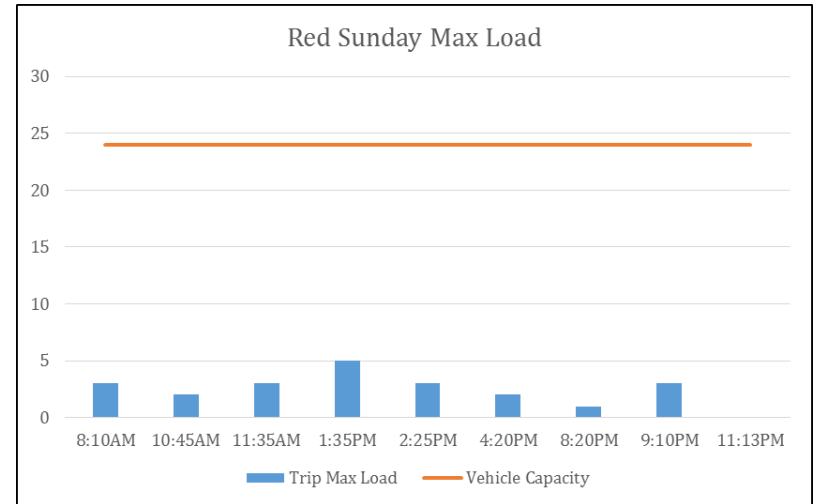
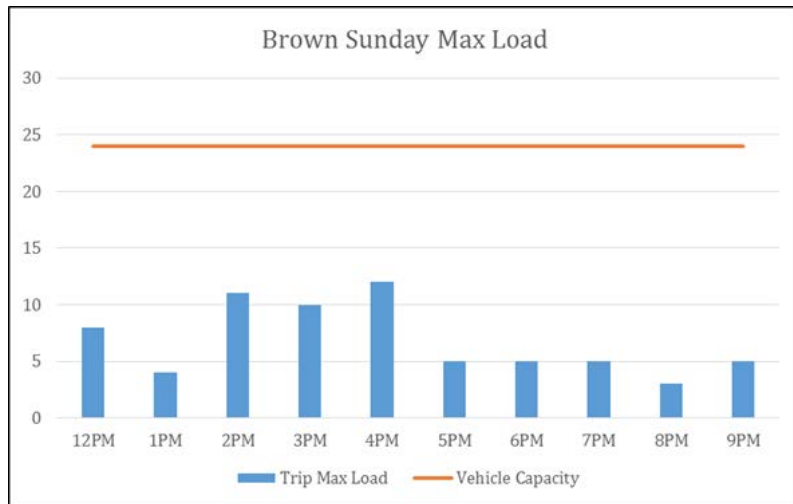
Table 5: Summary of Boardings per Revenue Hour

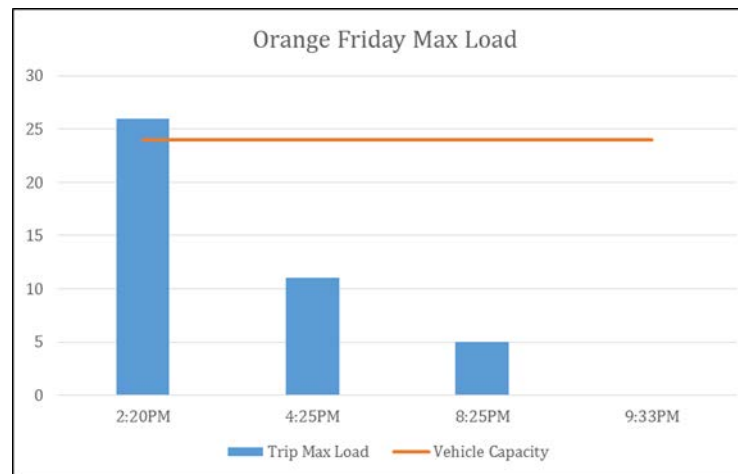
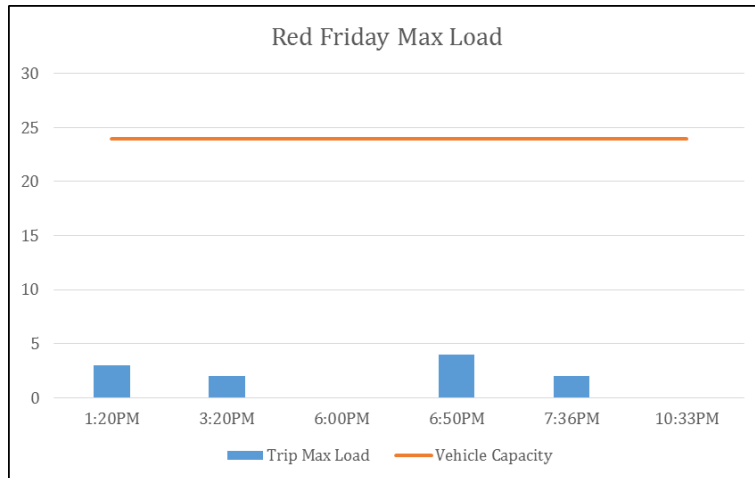
Route	Weekday Boardings per Revenue Hour	Saturday Boardings per Revenue Hour	Sunday Boardings per Revenue Hour
Yellow	6 to 14	1 to 8	N/A
Green	4 to 14	Pending	N/A
Brown	1 to 6	5 to 19	2 to 13
Red	0 to 4 (Friday)	0 to 5	0 to 5
Orange	5 to 26 (Friday)	1 to 16	2 to 17
Purple	3 to 12	N/A	N/A

² The Green Route was not surveyed or counted on Saturday. However, Saturday data will be added in the next technical memorandum.









ON-TIME PERFORMANCE

On-time performance data was collected by stop during the on/off count process. The following tables outline the average performance at the busiest stops on each route. The consultant team applied two standards to on-time performance. The first standard is that a vehicle arrives on-time or within 5 minutes of the scheduled arrival time. The second standard is that the vehicle arrives on-time or within 10 minutes of the scheduled arrival time. V-Line may select one of these standards or apply its own standard. Any changes will be included in the final Route Study report.

On weekdays, the Yellow Route was surveyed 39 to 43 times (or trips). The vehicle arrived four times at Michigan and Indiana. The vehicle arrived within five minutes of the scheduled time 66.7 percent of trips and within 10 minutes of the scheduled time 83.3 percent of trips. The Yellow Route was over 5 minutes late to stops at Campbell & Lincolnway and Andover Apartments on 19 trips, but on-time to those locations on 79.5 to 86.0 percent of trips. The following charts outline the on-time performance at the busiest stops on each route.

Weekday Route Performance

Yellow Route Weekday On-Time Performance

Weekday Average		Total Weekday Average					
STREET	CROSS ST.	Over 5 Min	Over 10 Min	Early	Trips	% On-Time 0-5 Min	% On-Time 0-10 Min
Michigan	Indiana	10	3	4	42	66.7%	83.3%
Campbell	Lincolnway	19	7	1	39	48.7%	79.5%
Andover Apartments		19	5	1	43	53.5%	86.0%
Social Security Office		7	2	1	43	81.4%	93.0%
Calumet	Town and Country	7	1	0	42	83.3%	97.6%
Michigan	Indiana	9	2	6	42	64.3%	81.0%

Green Route Weekday On-Time Performance

Weekday Average		Total Weekday Average					
STREET	CROSS ST.	Over 5 Min	Over 10 Min	Early	Trips	% On-Time 0-5 Min	% On-Time 0-10 Min
Lincolnway	Michigan	7	1	3	43	76.7%	90.7%
Wal-Mart		12	4	2	43	67.4%	86.0%
Target		13	5	2	44	65.9%	84.1%
Ivy Tech		5	2	0	34	85.3%	94.1%
Cinemark Move Theater		6	0	2	38	78.9%	94.7%
Heart Center Parking Lot		3	0	18	44	52.3%	59.1%
Michigan	Indiana	6	1	6	44	72.7%	84.1%

Brown Route Weekday On-Time Performance

Weekday Average		Total Weekday Average					
STREET	CROSS ST.	Over 5 Min	Over 10 Min	Early	Trips	% On-Time 0-5 Min	% On-Time 0-10 Min
VU Student Union		7	3	0	33	78.8%	90.9%
Wal-Mart		6	1	1	33	78.8%	93.9%
Indiana	Michigan	1	0	11	33	63.6%	66.7%
VU Student Union		4	0	3	34	79.4%	91.2%
Ivy Tech		4	2	0	28	85.7%	92.9%
Target		8	1	1	34	73.5%	94.1%
VU Student Union		8	4	0	34	76.5%	88.2%

Purple Route Weekday On-Time Performance

Weekday Average		Total Weekday Average					
STREET	CROSS ST.	Over 5 Min	Over 10 Min	Early	Trips	% On-Time 0-5 Min	% On-Time 0-10 Min
Lincolnway	Michigan	0	0	0	3	100.0%	100.0%
Wal-Mart		0	0	0	3	100.0%	100.0%
VU Student Union		0	0	2	6	66.7%	66.7%
K-Mart		0	0	1	6	83.3%	83.3%
YMCA		0	0	3	6	50.0%	50.0%
Wal-Mart		0	0	0	3	100.0%	100.0%
VU Student Union		0	0	1	3	66.7%	66.7%
Campbell	Lincolnway	0	0	0	3	100.0%	100.0%

Weekend Route Performance

Yellow Route Saturday On-Time Performance

Saturday		Total Saturday Average					
STREET	CROSS ST.	Over 5 Min	Over 10 Min	Early	Trips	% On-Time 0-5 Min	% On-Time 0-10 Min
Michigan	Indiana	0	0	3	11	72.7%	72.7%
Campbell	Lincolnway	1	0	0	11	90.9%	100.0%
Andover Apartments		0	0	0	12	100.0%	100.0%
Social Security Office		0	0	3	12	75.0%	75.0%
Calumet	Town and Country	0	0	0	12	100.0%	100.0%
Michigan	Indiana	0	0	5	12	58.3%	58.3%

Brown Route Saturday On-Time Performance

Saturday Average		Total Saturday Average					
STREET	CROSS ST.	Over 5 Min	Over 10 Min	Early	Trips	% On-Time 0-5 Min	% On-Time 0-10 Min
VU Student Union		2	0	0	6	66.7%	100.0%
Wal-Mart		1	0	0	6	83.3%	100.0%
Indiana	Michigan	0	0	4	6	33.3%	33.3%
VU Student Union		1	0	0	6	83.3%	100.0%
Ivy Tech		1	0	0	3	66.7%	100.0%
Target		1	0	0	6	83.3%	100.0%
VU Student Union		2	0	0	6	66.7%	100.0%

Brown Route Sunday On-Time Performance

Sunday Average		Total Sunday Average					
STREET	CROSS ST.	Over 5 Min	Over 10 Min	Early	Trips	% On-Time 0-5 Min	% On-Time 0-10 Min
VU Student Union		2	0	0	9	77.8%	100.0%
Wal-Mart		0	0	0	9	100.0%	100.0%
Indiana	Michigan	0	0	8	9	11.1%	11.1%
VU Student Union		1	0	1	10	80.0%	90.0%
Ivy Tech		1	0	0	10	90.0%	100.0%
Target		2	0	0	10	80.0%	100.0%
VU Student Union		1	0	1	10	80.0%	90.0%

Red Route Friday On-Time Performance

Friday Average		Total Friday Average					
STREET	CROSS ST.	Over 5 Min	Over 10 Min	Early	Trips	% On-Time 0-5 Min	% On-Time 0-10 Min
VU Student Union		3	2	0	5	40.0%	60.0%
Wal-Mart		2	1	0	4	50.0%	75.0%
YMCA		2	2	0	4	50.0%	50.0%
VU Student Union		4	3	0	5	20.0%	40.0%

Red Route Saturday On-Time Performance

Saturday Average		Total Saturday Average					
STREET	CROSS ST.	Over 5 Min	Over 10 Min	Early	Trips	% On-Time 0-5 Min	% On-Time 0-10 Min
VU Student Union		3	2	0	7	57.1%	71.4%
Wal-Mart		3	3	0	7	57.1%	57.1%
YMCA		2	0	1	8	62.5%	87.5%
VU Student Union		0	0	2	8	75.0%	75.0%

Red Route Sunday On-Time Performance

Sunday Average		Total Sunday Average					
STREET	CROSS ST.	Over 5 Min	Over 10 Min	Early	Trips	% On-Time 0-5 Min	% On-Time 0-10 Min
VU Student Union		0	0	1	9	88.9%	88.9%
Wal-Mart		0	0	1	9	88.9%	88.9%
YMCA		0	0	2	9	77.8%	77.8%
VU Student Union		0	0	2	9	77.8%	77.8%

Orange Route Friday On-Time Performance

Friday Average		Total Friday Average					
STREET	CROSS ST.	Over 5 Min	Over 10 Min	Early	Trips	% On-Time 0-5 Min	% On-Time 0-10 Min
VU Student Union		0	0	0	3	100.0%	100.0%
Starbucks		1	0	0	3	66.7%	100.0%
Dunes Station		0	0	1	3	66.7%	66.7%
VU Student Union		1	1	1	3	33.3%	33.3%

Orange Route Saturday On-Time Performance

Saturday Average		Total Saturday Average					
STREET	CROSS ST.	Over 5 Min	Over 10 Min	Early	Trips	% On-Time 0-5 Min	% On-Time 0-10 Min
VU Student Union		0	0	0	5	100.0%	100.0%
Starbucks		0	0	0	5	100.0%	100.0%
Dunes Station		1	0	2	5	40.0%	60.0%
VU Student Union		2	1	1	5	40.0%	60.0%

Orange Route Sunday On-Time Performance

Sunday Average		Total Sunday Average					
STREET	CROSS ST.	Over 5 Min	Over 10 Min	Early	Trips	% On-Time 0-5 Min	% On-Time 0-10 Min
VU Student Union		0	0	0	6	100.0%	100.0%
Starbucks		0	0	0	6	100.0%	100.0%
Dunes Station		0	0	5	6	16.7%	16.7%
VU Student Union		1	1	2	6	50.0%	50.0%

IV. TRANSIT DEMAND ANALYSIS

DEMOGRAPHIC ANALYSIS

Demographic and socio-economic factors are commonly used to project the existing and potential demand for public transportation service. The demographic analysis for V-Line includes the following specific population characteristics for the City of Valparaiso:

- ◆ Density of households below the poverty level
- ◆ Density of college students
- ◆ Density of single vehicle households
- ◆ Population density
- ◆ Density of older adults (age 60 and older)
- ◆ Density of individuals of the traditional working ages (age 21 to 59)
- ◆ Density of zero vehicle households

POPULATION DENSITY

The Census Block groups with the highest population density are located on the east side of the City (west of Route 49), and the southwest corner of the city near Routes 49 and 130. Other areas of higher densities are in southern and southwestern sections of the city. Exhibit 49 on the following page illustrates the population density by block group.

INCOME

Individuals living below the Federal poverty level tend to use public transportation because it is more affordable than owning and operating a vehicle. Therefore, the statistics for zero- and single-vehicle households, as well as the densities of households below the poverty level are all significant indicators of the geographic locations where public transit may be most often needed. Exhibits 50, 51, and 52 on the following pages illustrate the densities of households below the poverty level, single-vehicle and zero-vehicle households.

AGE

Older adults, college students, and the workforce in Valparaiso have differing transportation needs. Therefore it is important to consider where the largest densities of each age group are located in the City. Exhibits 53, 54, and 55 illustrate the areas of highest to lowest density in each age group.

Exhibit 49: Population Density

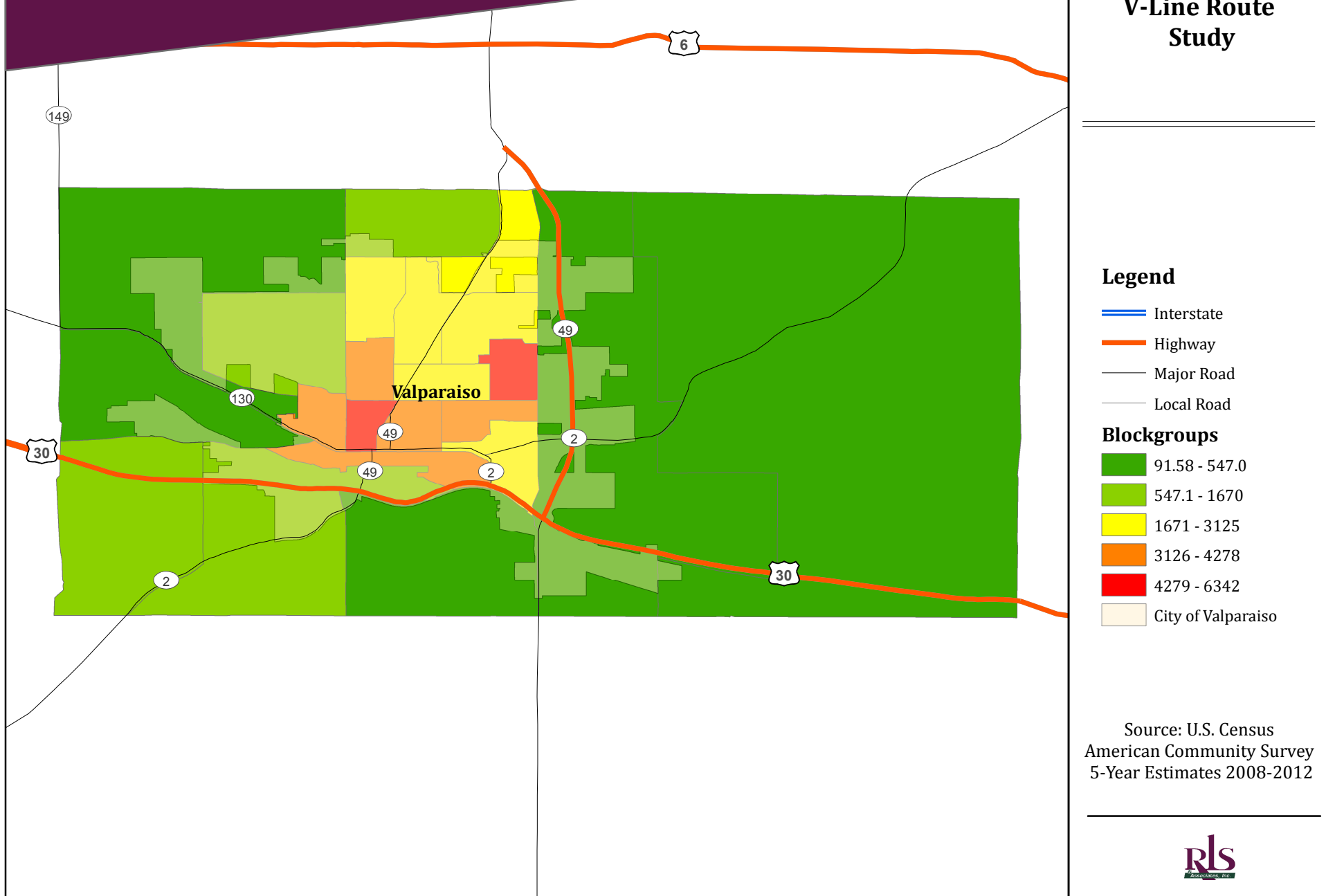


Exhibit 50: Percent Population Below Poverty Level

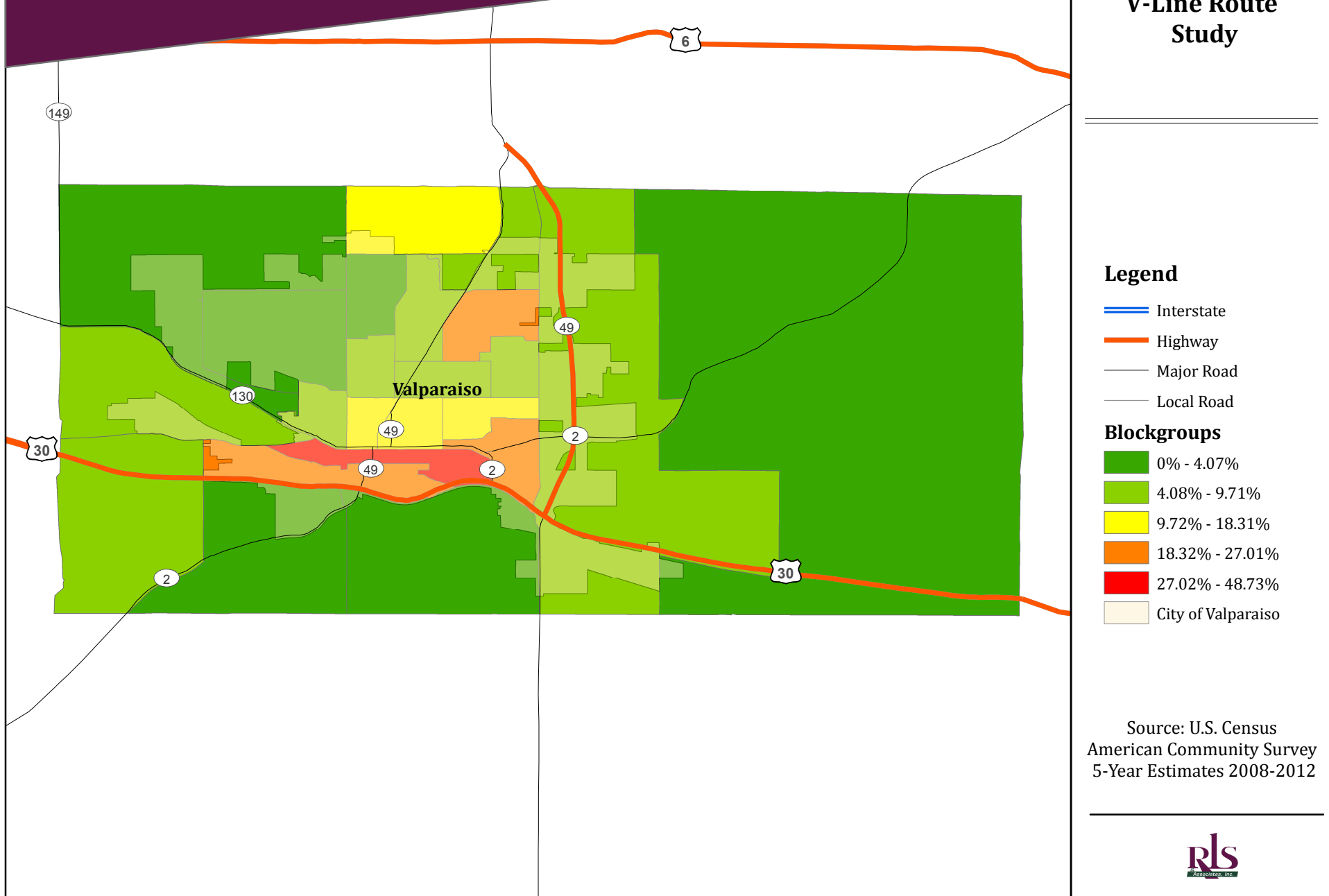


Exhibit 51: Percent One Vehicle Households

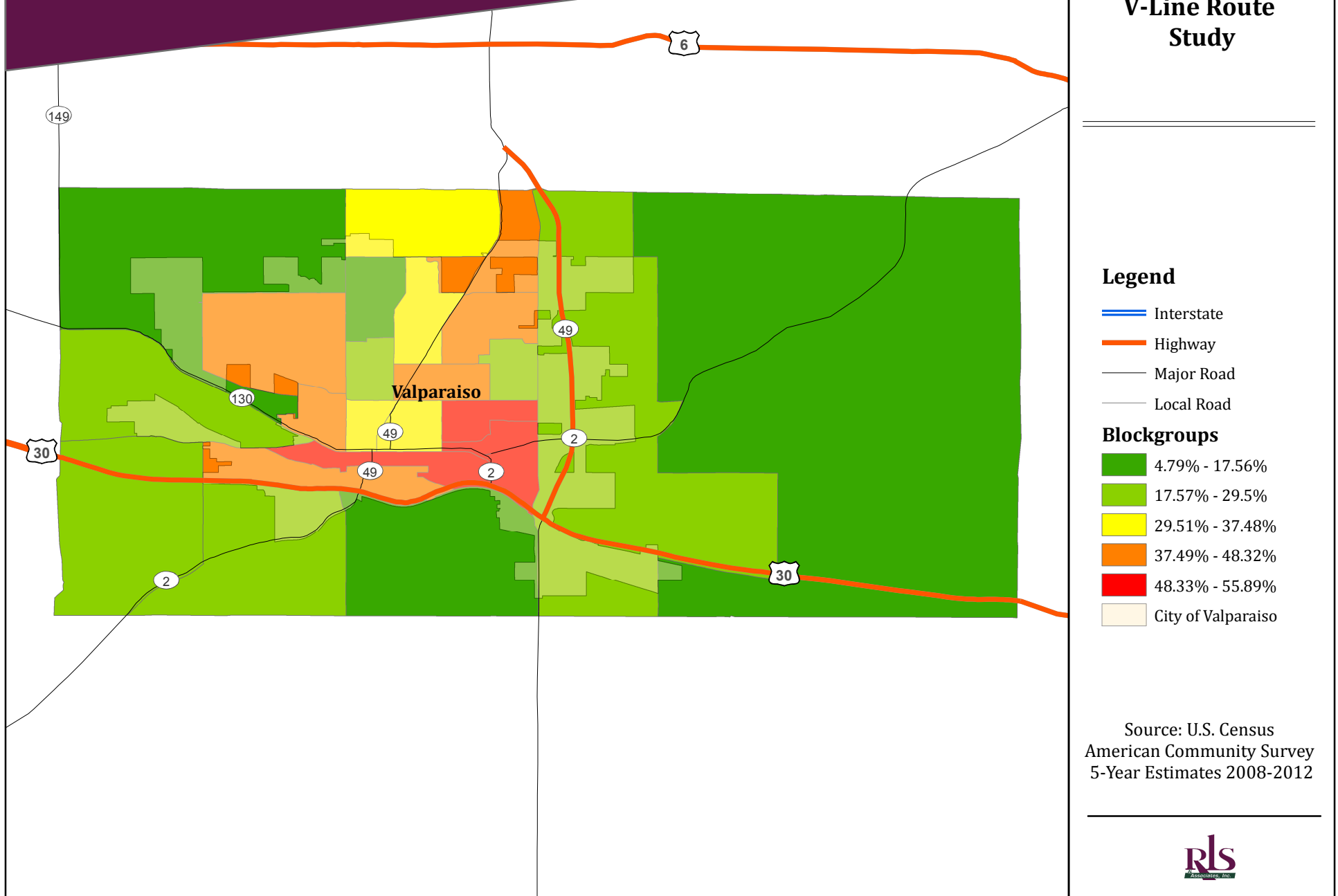


Exhibit 52: Percent Zero Vehicle Households

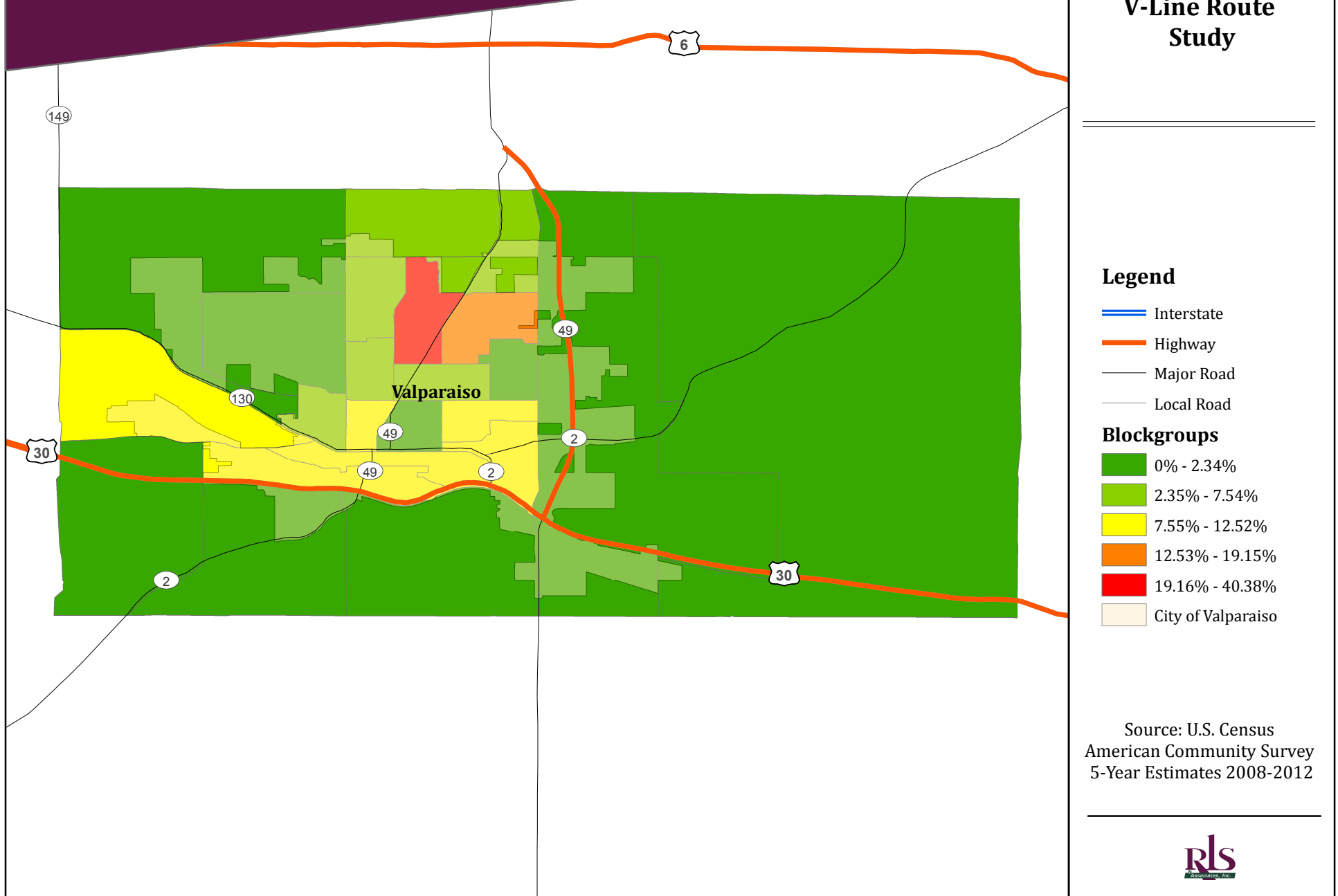


Exhibit 53: Population Density Age 60 and Over

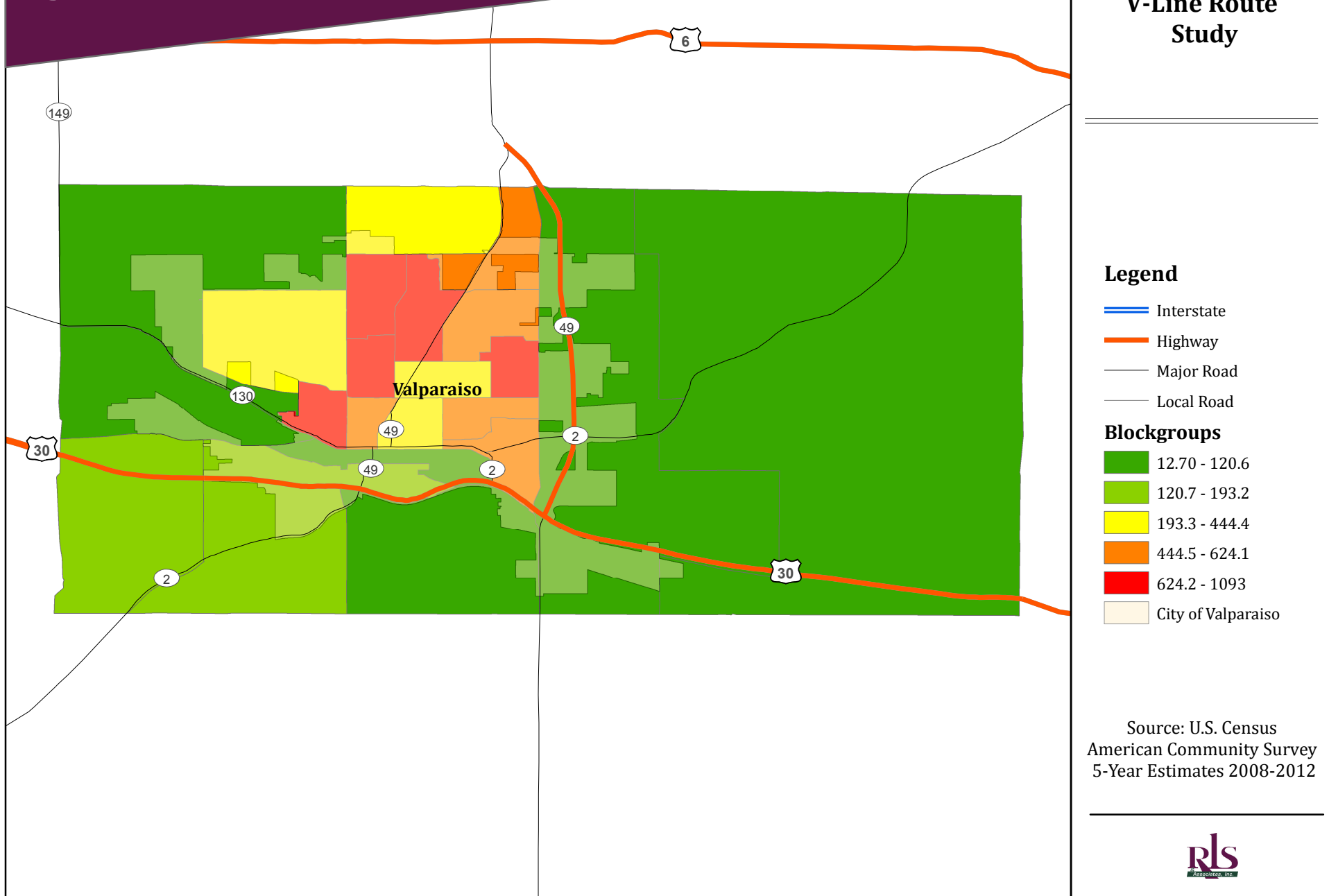


Exhibit 54: Population Density Age 18 - 21 (College Age)

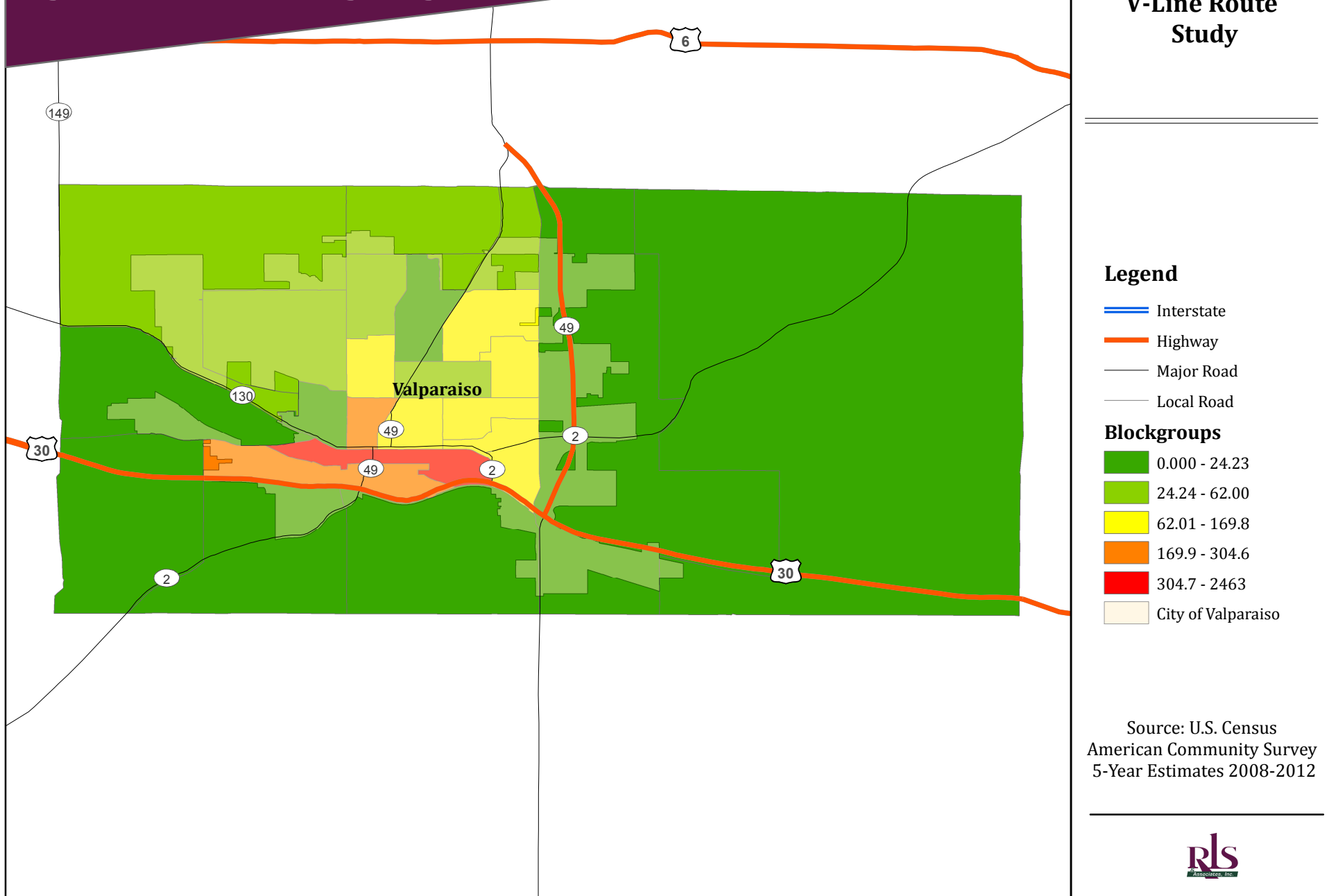
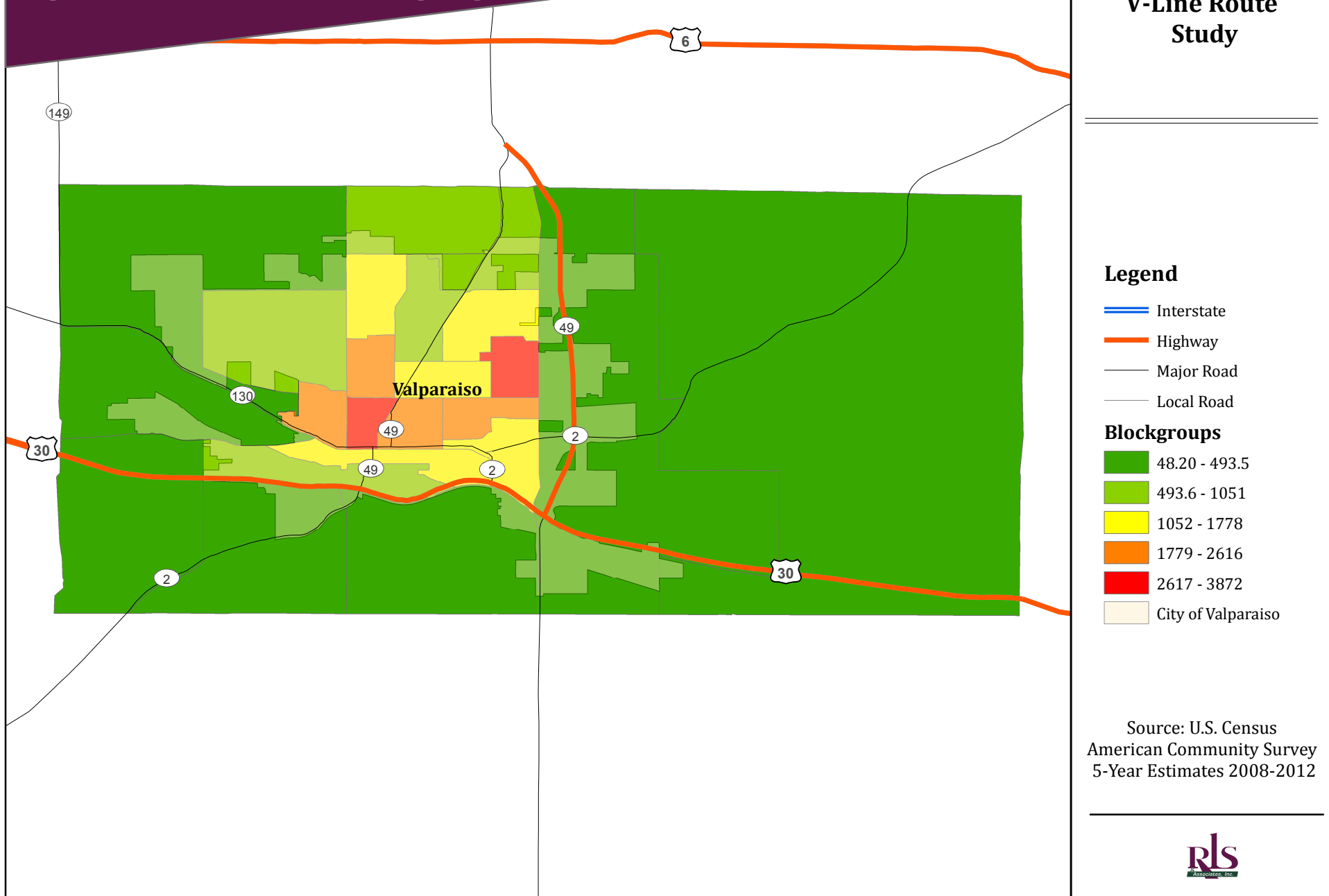


Exhibit 55: Population Density Age 21 to 59 (Working Age)



Demand

V. TRANSIT PROPENSITY/DEMAND

One method of projecting which locations V-Line should serve in order to reach the transit dependent population is a calculation to determine transit propensity. Transit propensity is a measure of the likelihood that a local population will use transit service, were it available to them, taking into account their demographic characteristics. The model was derived through research completed on transit trip generation. The end result is an estimate of the relative propensity for transit per census block group.

To calculate transit propensity, U.S. Bureau of the Census American Community Survey 5-Year Estimates 2008-2012 data were gathered at the block group level for the entire V-Line service area. The data included: total population, total households, population below poverty level, number of persons age 60 and older, number of persons age 18 to 21, and the number of households with zero vehicles available.

The first step in calculating propensity involved creating a threshold value equal to the total number of each variable characteristic divided by the total for the entire service area. The service area is equal to the sum of the populations and households of the study area. Calculations for the threshold values are outlined in the following bullet points.

- ◆ Number of households with zero vehicles divided by the total number of households within the service area equals 7.09% (threshold value).
- ◆ Population within the service area living below the poverty level divided by the calculated poverty population* equals 11.46% (threshold value).
- ◆ Population within the service area that is age 60 and over divided by the total population of the service area equals 19.55% (threshold value).
- ◆ Population within the service area that is between the age of 18 and 21 divided by the total population of the service area equals 6.24% (threshold value).

*Calculated Poverty Population is calculated for all people except institutionalized people, people in military group quarters, people in college dormitories, and unrelated individuals under 15 years old. These groups were excluded from the numerator and denominator when calculating poverty rates.

The threshold values were entered into the transit propensity model to determine each block group's transit propensity. This process included:

- ◆ Calculating the standard deviation for each variable to create a "moderate" category equal to one standard deviation around the mean (threshold). (One-half standard deviation below and one-half standard deviation above the threshold value)
- ◆ Query the variables for block groups that experienced percentages within the categories very low, low, moderate, high, and very high propensity.
 - Very low equals at least three of the four variables for the block group fell below the lower limit threshold value
 - Low equals one or two of the four variables were below the lower limit
 - Moderate equals block groups within one standard deviation around the mean

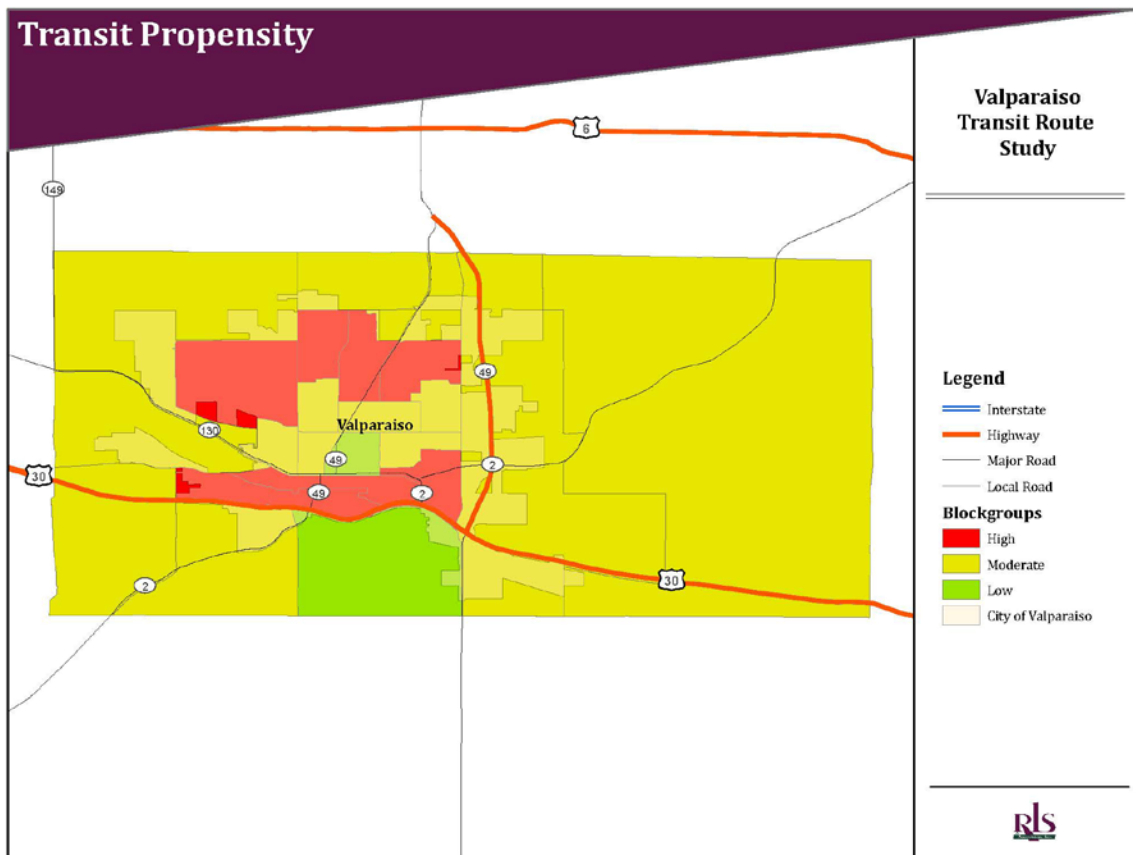
- o High propensity equals block groups where one or two of the four variables exceed the upper limit
- o Very high propensity equals block groups where three of the four variables exceed the upper limit

The following exhibits illustrate the process and the data.

Exhibit 56: Transit Propensity Process

Variable	Transit Propensity				
	Very Low	Low	Moderate	High	
Zero Vehicle Households	Three of the four variables fell below the lower limit	One or two of the four variables fell below the lower limit	0% - 15.95%	One or two of the four variables fell below the lower limit	Three of the four variables fell below the lower limit
Below Poverty Level			0.79% - 22.75%		
Population 60+			10.4% - 28.69%		
Population 18-21			0% - 18.01%		

Exhibit 57: Transit Propensity



Areas of highest projected transit demand had a combination of the greatest population densities, largest poverty populations, most households without an available vehicle, and had the highest traditional college-age and older adult populations.

Peers

VI. PEER SYSTEM REVIEW

INTRODUCTION

Analysis of peers in the public transportation industry is provided in this chapter. Peer system information is a strong planning tool because it permits V-Line to review the benefits and challenges, as well as the productivity of other public transportation systems of similar size.

METHODOLOGY

The consulting team developed a standard list of interview questions for peer transportation systems. Then, the team researched public transportation programs across the country that operate deviated routes or fixed routes with complementary ADA paratransit service. Some of the peer systems have learned valuable lessons during their own planning phases. Others have been successfully operating the same modes of transportation services for years.

The list of transportation system peers was selected based on their service area and mode of service. Projects small urban areas were targeted as a first priority; most of the selected programs operate in the mid-west, which indicates a higher likelihood of similar economic and weather conditions. The source for peer data is the National Transit Database, 2012 data.

Table 5 illustrates the group of peers based on the number of total annual passenger trips and total population. As illustrated, there is a wide range of population sizes included in the peer data. The peer group was expanded to include these systems because the number of annual trips provided per year in Valparaiso is similar or even larger than the total trips provided by systems serving a much larger population and service area.

Within the selected group of twelve peer communities, V-Line ranks as the third smallest population size, but the eight highest in annual passenger trips.

Table 6: Basic Peer System Data

Peers	System Name	Service Area Population	Square Miles	Total Trips
Delaware, OH	DATA	174,214	459	70,263
Xenia, OH	Greene CATS	147,886	425	181,181
Holland, MI	MAX	71,572	42	455,390
Dekalb, IL	DSATS	68,545	26	176,541
Danville, IL	DMT	50,996	30	659,153
Fond Du Lac, WI	Fond du Lac Area Transit	49,167	19	221,623
Columbus, IN	ColumBUS	44,061	27	199,143
Parkersburg, WV	Easy Rider (MOVTA)	42,241	14	454,427
Michigan City, IN	MC Transit	32,564	20	126,761
Valparaiso, IN	V-Line	31,730	16	148,575
West Bend, WI	City of West Bend	31,380	15	119,764
Petersburg, VA	PAT	31,300	7	664,701

Source: National Transit Database, 2012

Exhibit 58 illustrates the comparison of the number of “Passenger Trips” per capita for each system. The peer group average is 6.41. V-Line scores below the peer average at 4.68 trips per capita.

Exhibit 58: Passenger Trips Per Capita

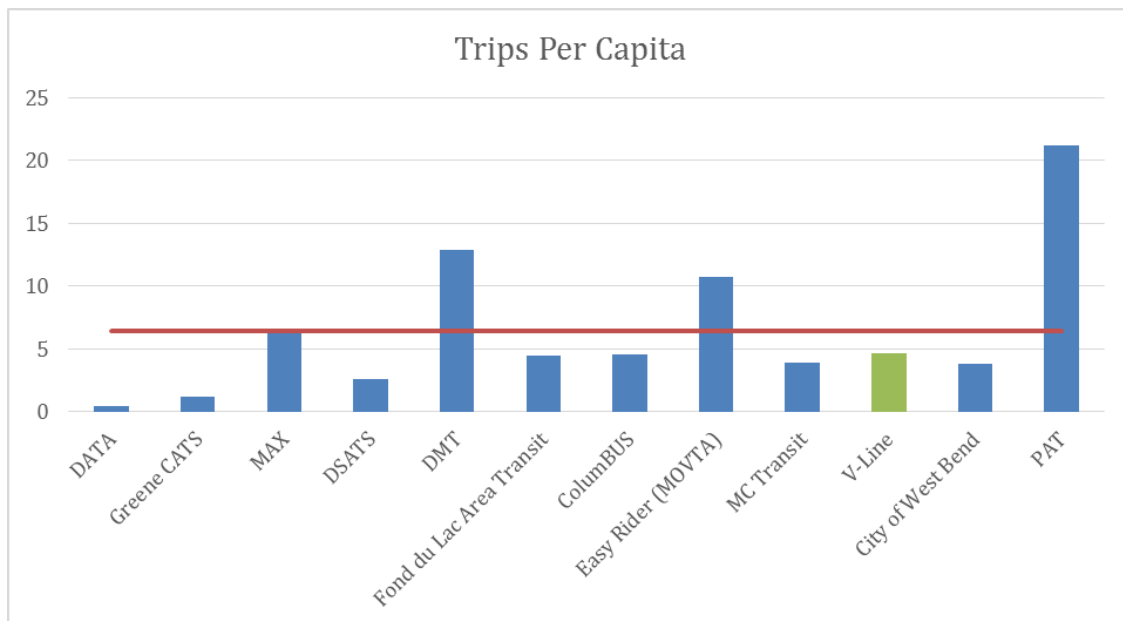


Exhibit 59 illustrates the peer comparison of trips per hour, according to NTD data in 2012. V-Line reported an average of 7.54 trips per hour. The peer group average was 12.28 trips per hour.

Exhibit 59: Passenger Trips Per Hour

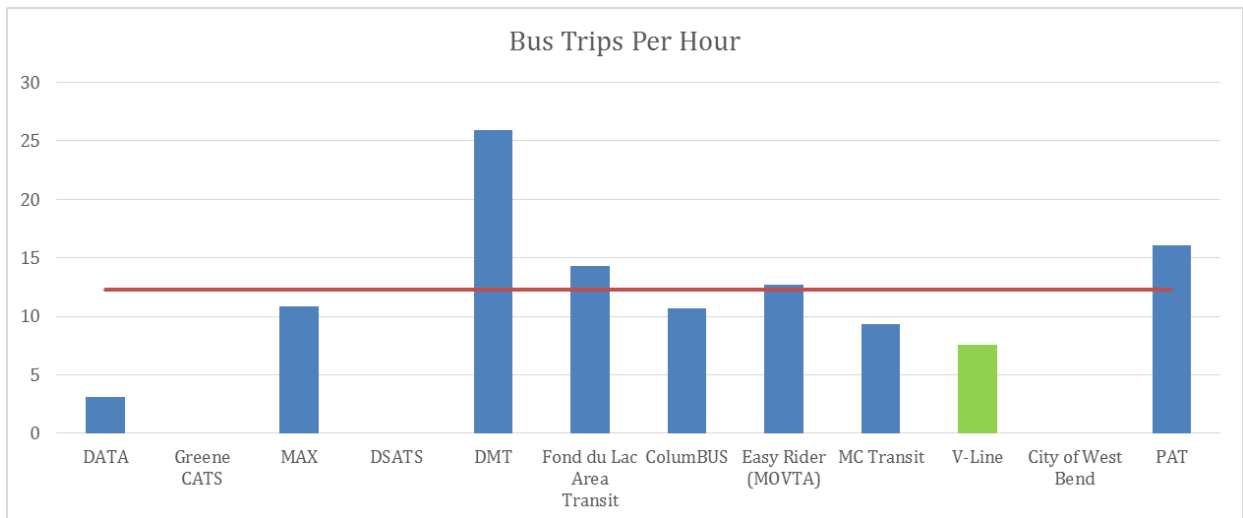


Exhibit 60 illustrates the reported Passenger Trips per mile. As indicated, V-Line reported 0.55 trips per mile whereas the peer group average was 0.90 trips.

Exhibit 60: Passenger Trips Per Mile

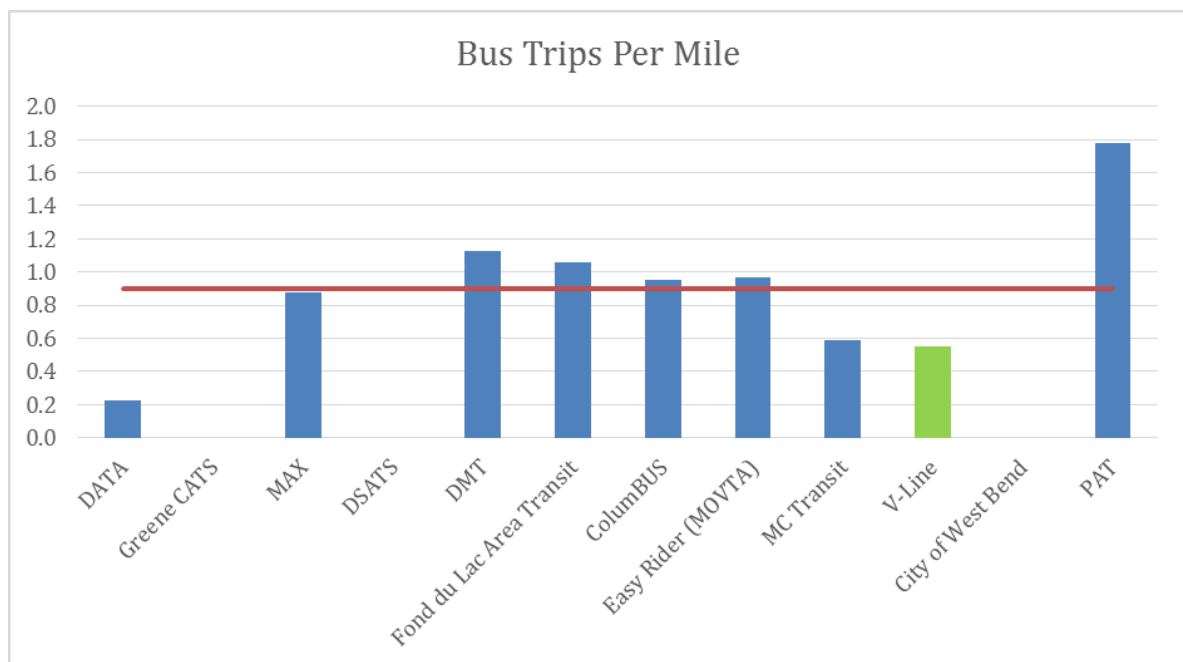


Exhibit 61 illustrates a comparison of total annual operating costs for the peer transportation systems. The chart indicates the systems that provide deviated routes, similar to those operated by V-Line with the color green. Blue columns on the chart reflect systems that operate fixed route and

demand response/paratransit services. V-Line has the second lowest annual operating costs among the peer group. Annual expenses are most similar to Michigan City, Indiana's transit system (MC Transit).

Exhibit 61: Total Annual Operating Costs

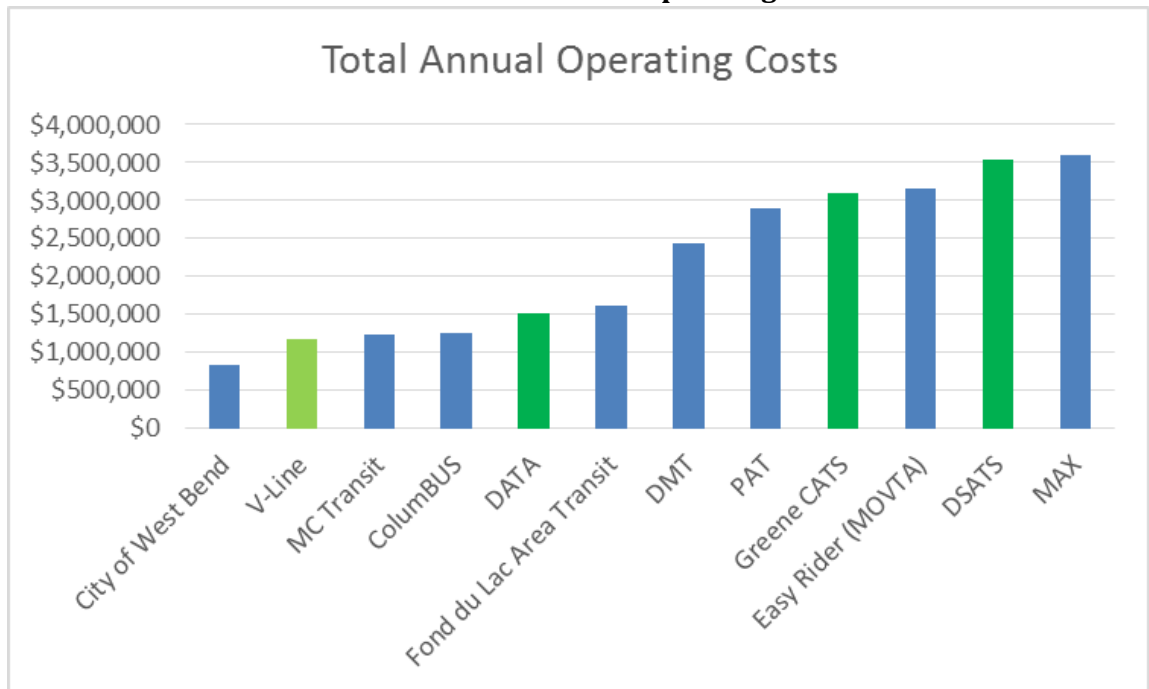
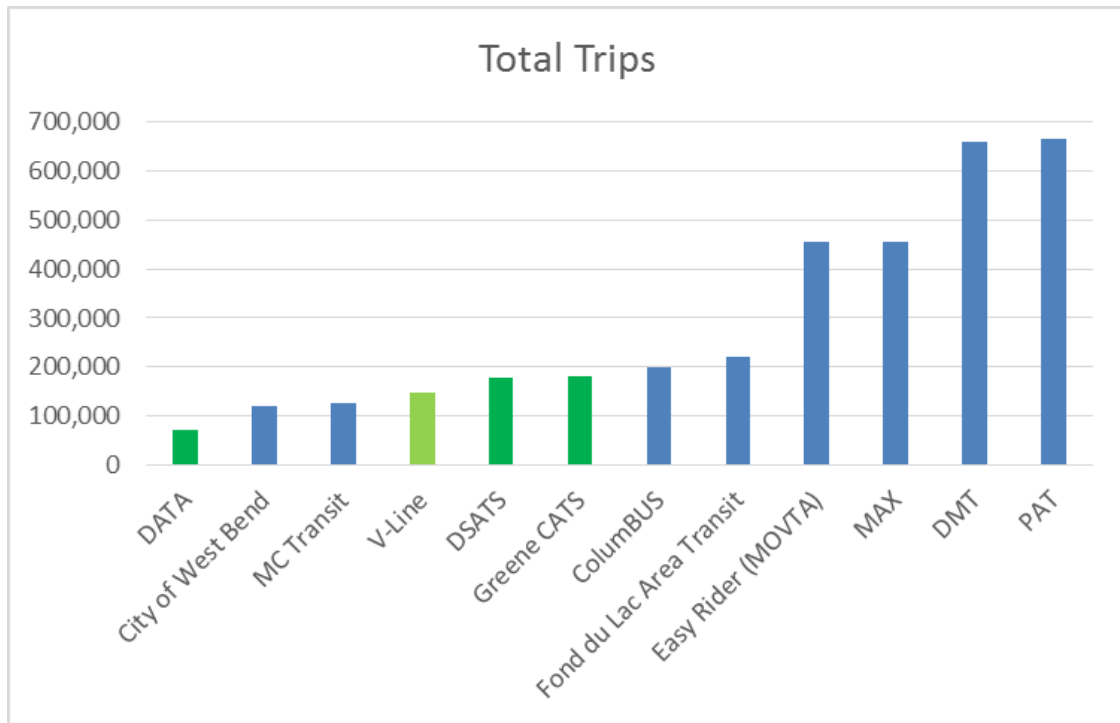


Exhibit 62 compares the total number of passenger trips provided by each peer system. Again, the colors of green and blue are used to separate the different modes of service. V-Line ranks ninth in terms of the total passenger trips provided in 2012.

Exhibit 62: Total Annual Passenger Trips



To compare service efficiency of V-Line with its peers, the reviewer analyzed the operating cost per revenue mile and revenue hour for each provider. Exhibit 60 illustrates the cost per revenue mile for demand response services provided by each peer system. It is noted that V-Line reports its cost per hour as fixed route in the National Transit Database. However, other providers in this peer group who provide deviated fixed route services (in green) list their cost per mile as demand response. Therefore, the V-Line cost per mile was moved to the demand response category for the purpose of this report. When left with the other fixed route productivity numbers, V-Line ranks as the fifth lowest cost per revenue mile among all of the peers; V-Line ranks as the third lowest cost per revenue mile among deviated route operators.

Exhibit 63: Cost per Revenue Mile

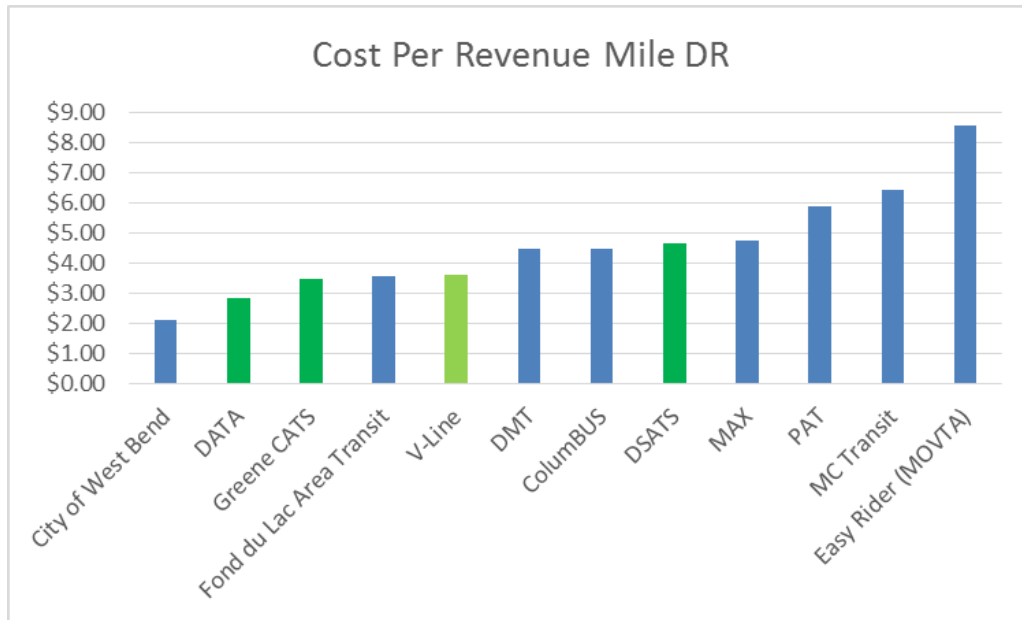
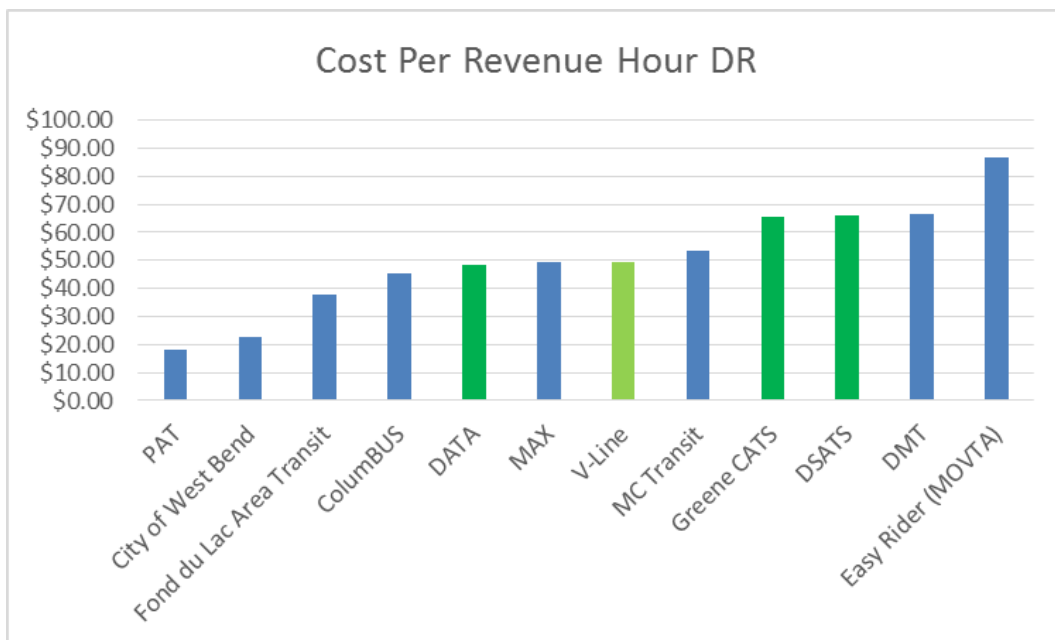


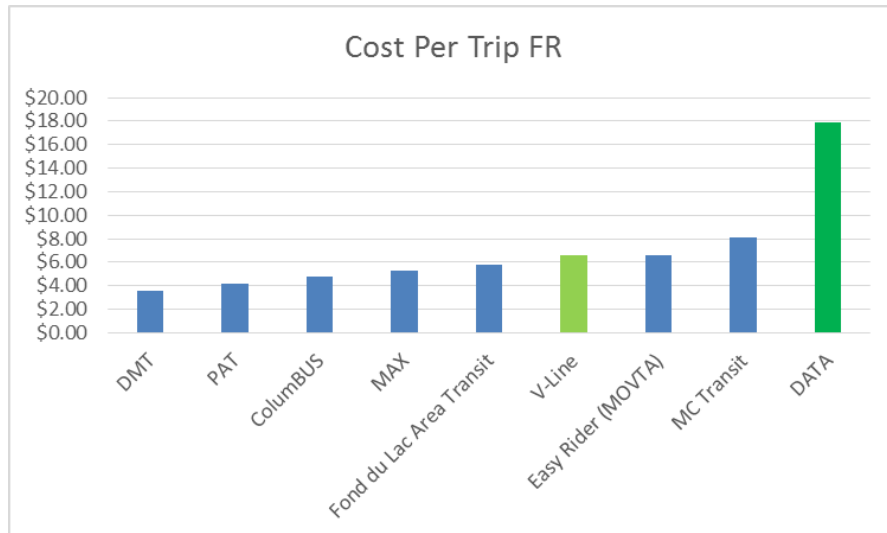
Exhibit 64 illustrates the cost per revenue hour. V-Line ranks near the middle of the peer group in cost per revenue mile at \$49.58 per mile. The total peer group includes paratransit services (in blue) and deviated route providers (in green). Among the peers that provide deviated routes, V-Line has the second highest cost per mile.

Exhibit 64: Cost per Revenue Hour



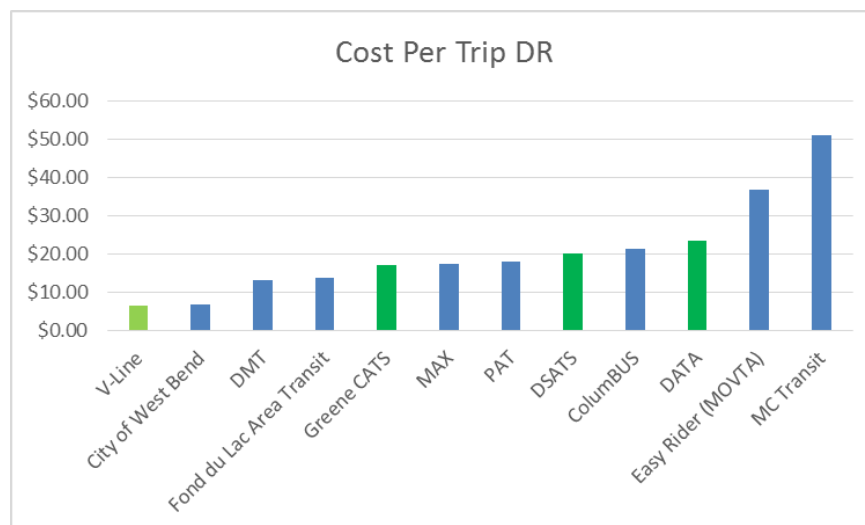
When comparing cost per passenger trip, V-Line is more similar to its fixed route peers than its deviated route peers. The average cost per trip for the fixed route services operated by peers was \$6.97. The cost per trip for V-Line was \$6.58 in 2012.

Exhibit 65: Cost per Trip Fixed Route



A similar comparison of the cost per trip among the demand response services, which would include the other three deviated route systems, places V-Line at the lowest cost per trip. The peer average in this category was \$20.84. V-Line rated at \$6.58 in 2012. If the outlier, Michigan City Transit, is removed from the peer group, the average drops to \$17.71; which is well above the V-Line cost per trip. This is an indication that V-Line vehicles have the fewest empty seats, on average.

Exhibit 66: Cost Per Trip Demand Response, Deviated Route



PEER SUMMARIES

The following paragraphs summarize the service provided by selected peer group transit systems.

Delaware Area Transit Agency (DATA) (Delaware County, OH)

Delaware Area Transit Agency (DATA) operates five deviated fixed routes along with demand response service for Delaware County, Ohio residents. One of the deviated fixed routes provides transportation to and from Polaris Fashion Mall in Columbus, Ohio. The remaining four deviated fixed routes operate within the City of Delaware. DATA operates demand response Monday through Friday 6:00 AM to 6:00 PM, the Columbus, Ohio route from 5:30 AM to 6:44p PM, Monday through Friday, and the Delaware City Routes from 6:30 AM to 6:20 PM, Monday through Friday.

Deviations

All of DATA's routes will deviate up to $\frac{3}{4}$ of a mile for passengers that have been certified by DATA as having an ADA disability.

Coordination

DATA currently provides service from the City of Delaware to Columbus where passengers can then transfer (for free) to Central Ohio Transit Authority (COTA) buses to travel further on into Columbus.

Greene CATS (Xenia, OH)

Greene CATS is a county transit board that operates services in Greene County, Ohio. Demand response service operates Monday through Sunday 6:00 AM to 9:00 PM, while flex routes operate on weekdays, 6:00 AM to 6:00 PM. Twenty-nine vehicles are used to meet the demands of Greene County residents.

Deviations

Greene CATS flex routes deviate one or two times per loop based on the dispatcher's discretion and understanding of the route.

Challenges

The biggest challenge to the flex routes was building enough extra time to accommodate deviations without having to stop at all of the time points to stay on-time.

Macatawa area express (MAX) (Holland, MI)

MAX is a Transportation Authority that took control in 2007 from the City of Holland. The Authority contracts with the City of Holland for essential administrative support. The current service area is the City of Holland, City of Zeeland, and Holland Charter Township.

They have approximately 25 buses used for fixed route and demand response services.

Modes of Service

Fixed Route (8 routes)

Demand Response (Reserve-A-Max)

- ◆ ADA and people age 70+ given priority
- ◆ Reservations made by 4 PM previous day
- ◆ Origin/Destination must be farther than ½ mile of a fixed route stop

Nite Owl Service (Demand Response run from 7 PM to 12 AM)

Fare Collection

- ◆ Vault type of farebox. (No electronic)
- ◆ Heavier card stock, one color on each different pass.

Lessons Learned

- ◆ What did you do to increase ridership?
 - Expanded to 7 routes in 2007 from 3.
 - Added an 8th route in 2009 to Zeeland
 - Persistent elevated unemployment
 - Decrease in household income
 - Rising fuel costs
- ◆ What improvements were made as ridership increased?
 - Fares Choices
 - Started selling passes online in 2009
 - Addition of routes
 - Introduced eligibility requirements in 2000
- ◆ What marketing techniques did you use to increase ridership?
 - Public outreach
 - Website

In 2000, when MAX first introduced three fixed routes, the majority of passengers still preferred the former “Dial-A-Ride” service. With sustained marketing and public outreach programs, more passengers began using the fixed routes. Their major fixed route expansion in 2008 along with eligibility requirements for Reserve-A-MAX service resulted in a dramatic shift in usage from demand response to the fixed routes. This frees up more resources to allow MAX to better meet the needs of those who truly need and qualify for paratransit services.

DeKalb-Sycamore Area Transportation Study (Voluntary Action Center (TransVAC)) (DeKalb County, IL)

TransVAC provides door-to-door demand response service to residents of DeKalb County along with circulator deviated fixed routes within the cities of DeKalb and Sycamore. TransVAC operates Monday through Friday, 7:00 AM to 9 PM. Twenty-two vehicles provide roughly 12,000 demand response rides per month.

Coordination

TransVAC coordinates services with Huskie Bus Lines (Northern Illinois University) and operates limited bus transportation for Kishwaukee College. Voluntary Action Center of DeKalb also operates Kendall Area Transit in Kendall County, Illinois.

Danville Mass Transit (DMT) (Danville, IL)

Danville Mass Transit (DMT) provides fixed route, evening Dial-A-Ride, and paratransit services to residents of Danville, Champaign, Georgetown, Tilton, and Westville, Illinois. Service is provided Monday through Friday, 5:45 AM to 9:40p PM and Saturday from 7:15 AM to 7:00 PM.

Fond Du Lac Area Transit (Fond Du Lac, WI)

Fond du Lac Area Transit provides fixed route, taxi, and paratransit service to residents of Fond du Lac, the Village of North Fond du Lac, and the surrounding area. Service is provided Monday through Friday, 6:00 AM to 6:00 PM. Fond du Lac is the smallest urbanized city with fixed route bus service.

Coordination

The City of Fond du Lac, Fond du Lac Area Transit, and a taxi contractor work together to offer public transportation to areas of the City that are not serviced by fixed routes. The pickup or drop off location must be outside of ¾ mile from a fixed route or in a designated area.

ColumBUS (Columbus, IN)

ColumBUS provides fixed route and Call-a-Bus services to the City of Columbus, Indiana. It operates four fixed routes, Monday through Friday, 6:00 AM to 8:00p PM, and Saturday from 6:00a AM to 6:00 PM. Fixed route and Call-a-Bus services are operated using 11 vehicles.

Easy Rider (Parkersburg, WV)

Easy Rider operates eight fixed routes along with paratransit service to residents of Parkersburg and Vienna Monday through Saturday, from 5:50 AM to 6:00 PM. Paratransit service is only available to certified passengers who have a qualifying disability.

Deviations

Easy Rider's fixed routes have portions that they can deviate if a passenger requests the deviation. The deviations only occur in areas marked "Deviation Area" on the route maps. The deviation must be scheduled before the bus leaves the transit center or told to the bus driver if the passenger wants to be dropped off in the "Deviation Area."

Michigan City Transit (MCT) (Michigan City, IN)

Michigan City Transit (MCT) operates four fixed routes along with Dial-a-Ride service to residents of Michigan City, Indiana. MCT operates Monday through Friday, 6:30 AM to 6:00 PM, and Saturday from 8:30 AM to 6:00 PM. Fixed route and Dial-a-Ride services are operated using nine vehicles.

West Bend Taxi Service (West Bend, WI)

The City of West Bend, Wisconsin operates West Bend Taxi Service to residents within the city limits. West Bend Taxi operates curb-to-curb demand response service Monday through Saturday, 6:00 AM to 10:00 PM and Sunday from 8:00 AM to 4:00p PM.

Petersburg Area Transit (PAT) (Petersburg, VA)

Petersburg Area Transit (PAT) operates fixed route and paratransit service to residents of Petersburg, Colonial Heights, Dinwiddie, and Hopewell. Service is operated Monday through Friday from 6:15 AM to 6:15 PM and Saturday from 7:15 AM to 6:15 PM.

Coordination

PAT offers connection to Greater Richmond Transit Company (GRTC) and Greyhound.

PEER GROUP SUMMARY

The selected group of 12 peer transit systems is based on population and service area size. It is difficult to compare V-Line service using the National Transit Database statistics because V-Line is reporting its deviated fixed route statistics as fixed route service, while other systems are reporting their deviated route statistics with demand response, and fixed route statistics as fixed route. Nonetheless, some comparisons are possible when analyzing the overall service hours, miles, and passenger trips.

While V-Line ranks well among its peers in terms of the number of passenger trips provided per capita, it consistently falls below the peer group average in terms of trips provided per hour and mile of service. V-Line ranks high in service effectiveness and efficiency statistics.

Table 7: Peer Group Statistics Summary Table

Peers	System Name	Service Area Population	Total Trips	Total Annual Operating Costs	Service Efficiency				Service Effectiveness	
					Cost Per Revenue Mile FR	Cost Per Revenue Mile DR	Cost Per Revenue Hour FR	Cost Per Revenue Hour DR	Cost Per Trip FR	Cost Per Trip DR
Delaware, OH	DATA	174,214	70,263	\$1,525,216	\$4.03	\$2.85	\$55.22	\$48.57	\$17.84	\$23.50
Xenia, OH	Greene CATS	147,886	181,181	\$3,096,611	N/A	\$3.47	N/A	\$65.60	N/A	\$17.09
Holland, MI	MAX	71,572	455,390	\$3,593,479	\$4.63	\$4.78	\$57.15	\$49.49	\$5.26	\$17.42
Dekalb, IL	DSATS	68,545	176,541	\$3,531,529	N/A	\$4.66	N/A	\$65.97	N/A	\$20.00
Danville, IL MTD	DMT	50,996	659,153	\$2,438,148	\$3.99	\$4.49	\$91.66	\$66.52	\$3.53	\$13.33
Fond Du Lac, WI	Fond du Lac Area Transit	49,167	221,623	\$1,623,523	\$6.15	\$3.60	\$83.30	\$37.93	\$5.82	\$13.90
Columbus, IN	ColumBUS	44,061	199,143	\$1,264,096	\$4.52	\$4.50	\$50.69	\$45.55	\$4.76	\$21.24
Parkersburg, WV	Easy Rider (MOVTA)	42,241	454,427	\$3,151,540	\$6.37	\$8.56	\$83.71	\$86.86	\$6.58	\$36.69
Michigan City, IN	MC Transit	32,564	126,761	\$1,239,460	\$4.78	\$6.42	\$75.61	\$53.38	\$8.13	\$50.94
Valparaiso, IN	V-Line	31,730	148,575	\$1,183,841	N/A	\$3.62	N/A	\$49.58	\$6.58	N/A
West Bend, WI	City of West Bend	31,380	119,764	\$836,246	N/A	\$2.11	N/A	\$22.78	N/A	\$6.98
Petersburg, VA	PAT	31,300	664,701	\$2,906,184	\$7.45	\$5.91	\$67.53	\$18.10	\$4.19	\$18.04

Source: National Transit Database, 2012

Analysis

VII. V-LINE TRANSIT SERVICE ANALYSIS

RIDERSHIP AND PRODUCTIVITY

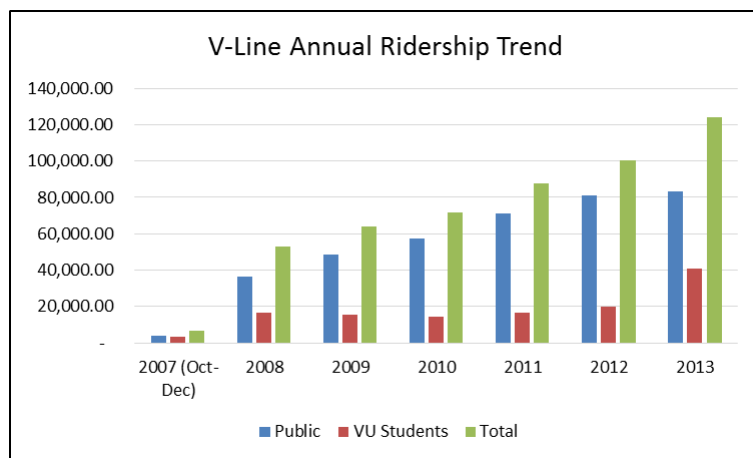
Ridership and operating data for V-Line were compiled from annual performance statistics provided by the City of Valparaiso.

Historical Ridership for V-Line

Public transit ridership, as documented over the previous five years, is displayed in the chart below. As can be seen in the chart, ridership has increased each year by a total of 134 percent since 2008. Overall, these impressive annual increases range from 13 percent (2009 to 2010) to 23 percent (2012 to 2013).

Public and VU Student ridership on V-Line has increased, with public ridership increases being most consistent. Ridership from Valparaiso University (VU) students is tracked separately from other general passenger ridership, in large part, due to the consistency in their common destination at the VU campus. Student ridership appears to have decreased slightly each year in 2009 and 2010. In 2011 and 2012, student ridership trends increased steadily, and in 2013, student ridership increased by over 100 percent. Conversely, ridership from non-VU students increased steadily each year between 2009 and 2013.

Exhibit 67: V-Line Annual Ridership



Source: City of Valparaiso and Ready Ride

V-Line Productivity

Productivity is measured in terms of passengers per revenue vehicle hour and mile. A revenue vehicle hour and mile is measured as the number of hours and miles that each vehicle is available for service. The detailed level of productivity is revealed by an analysis of the current V-Line ridership

by route. The average daily ridership on each route was estimated from a review of monthly reports submitted to the City of Valparaiso by the V-Line transportation service operator, Ride Right. Ridership estimates are based on the number of days of service in 2013 and the number of hours of operation for each route per day. Mileage estimates are based on average actual revenue miles operated by each route, July through December 2013. It is noted that the Purple Route service was initiated in December 2013. Therefore, estimates were not possible for this report.

Exhibit 68: V-Line Productivity by Route for V-Line Transit, 2013

	2013				
<u>Routes</u>	<u>Average Daily Ridership</u>	<u>Average Service Hours/Day</u>	<u>Average Passengers/Hour</u>	<u>Average Actual Miles/Day</u>	<u>Average Passengers/Revenue Mile*</u>
Red					
Friday	22.00	6	3.67	68	0.32
Saturday	30.00	9	3.33	105	0.29
Sunday	31.00	9	3.44	105	0.30
Orange					
Friday	40.00	8	5.00	118	0.34
Saturday	45.00	7	6.43	176	0.26
Sunday	35.00	7	5.00	165	0.21
Green	149.69	14	10.69	187	0.80
Brown	74.14	8	9.27	104	0.72
Yellow	131.23	14	9.37	169	0.78
System Average	62.01	9.11	6.25	133.01	0.44

Source: Annual 2013 Ridership and Revenue Hours and July-December Monthly Totals for Actual Revenue Miles by Route, Ride Right.

According to the service characteristics, the Green and Yellow routes have the highest daily ridership of all routes with an average of 150 and 131 passenger trips per day, respectively. The Orange and Red routes had the highest productivity in terms of passenger trips per revenue mile in 2013, however, all routes show a strong performance in terms of passengers per revenue mile and hour. The Green and Yellow routes have the lowest number of passengers per revenue mile, which is in large part due to the length of the routes.

V-Line Performance/Cost Effectiveness

Transit performance measurement determinations also must consider cost efficiency. Cost Efficiency is the amount of public transportation services produced for the community in relation to the resources expended. These measures address how many resources were expended per unit of public transportation service.

Transit performance measurements were applied to V-Line in an effort to assess the productivity for the system as a whole. The historical assessment of system productivity measures provides a basis

for projecting future ridership and financial requirements. It also provides an opportunity for establishing performance measures for the transit system. The following exhibit reveals cost effectiveness performance trends during Calendar Years 2008-2013, based on total annual ridership and total costs.

As illustrated in the table, as ridership increased each year, productivity in terms of cost per trip has improved drastically since 2008. In 2008, the cost per trip was approximately \$14.47. In 2013, the cost per trip was \$5.47. This represents an impressive improvement of 62 percent in cost effectiveness for V-Line, and is in large part due to the increase in ridership from Valparaiso University students.

Exhibit 69: V-Line Cost Effectiveness Performance Trend

Category	2008	2009	2010	2011	2012	2013
Total Costs	\$766,618.34	\$686,216.05	\$733,374.00	\$677,115.61	\$702,553.73	\$679,197.09
Annual Ridership	52,994	63,790	71,964	87,718	100,589	124,195
Cost per Trip	\$14.47	\$10.76	\$10.19	\$7.72	\$6.98	\$5.47

Source: City of Valparaiso and Ride Right

Vehicle Inventory

Exhibit 70 reflects the V-Line transit vehicle fleet roster. The V-Line fleet ranges in age from three 2007 SPCs to three 2013 Goshen Coaches. The fleet is 100 percent wheelchair accessible. All V-Line vehicles used in regular route service have a capacity for sixteen ambulatory passengers plus two wheelchairs. The ChicaGo Dash vehicles use diesel fuel and the V-Line vehicles use unleaded. All vehicles are leased to the City of Valparaiso. The City receives an 80 percent match to local funding from the Federal Highway Administration Congestion Mitigation and Air Quality (CMAQ) program for newly added ChicaGo Dash buses. The V-Line vehicles are purchased with a combination of Federal Transit Administration Section 5307 Program as capital cost of contracting and local funding.

Exhibit 70: V-Line and ChicaGo Dash Vehicle Fleet

System	# of Vehicle	Year	Manufacturer	Lift Equipped	Capacity	Fuel Type
Dash	4	2010	MCI	Yes	53	Diesel
Dash	1	2012	MCI	Yes	53	Diesel
V-Line	3	2007	SPC	Yes	16+2	Unleaded
V-Line	1	2010	Diamond	Yes	4	Unleaded
V-Line	2	2011	Goshen	Yes	16+2	Unleaded
V-Line	3	2013	Goshen	Yes	16+2	Unleaded

Source: Indiana Annual Report Draft, 2013

VIII. TRANSPORTATION IMPROVEMENT ALTERNATIVES

This chapter presents five categories of alternatives for public transportation service in Valparaiso to continue to improve and be the most effective service for its increasing demands. There are multiple suggested approaches within each of the five alternatives. The alternatives are:

1. Strengthening the Status Quo
2. Improve Regional Transportation Options
3. Route Structure Alternatives
4. Expand the Service and Scope of V-Line
5. Implement Fixed Routes and ADA Paratransit Service

The alternatives reflect the demand for transportation services, as identified through a demographics analysis of Valparaiso, and the unmet needs expressed by the stakeholders, transit system staff, the City of Valparaiso, and the general public. The service design options are constructed so that they may be applied individually or combined to create a different service design. The range of options involves adjustments in performance measurement and recommendations for service structure enhancements for V-Line.

The project steering committee members are encouraged to think creatively about each of the alternatives and the possibility for implementing them over the next five years. V-Line is an excellent transit service. The alternatives herein are intended to improve upon the good work that it already accomplishes.

ALTERNATIVE 1: STRENGTHENING THE STATUS QUO

Status quo, by definition, refers to the existing condition of a particular situation or state of affairs. While this alternative does not recommend major changes to the V-Line transit operations, neither does it mean “do nothing.” Each of the recommendations contained within this alternative are made to strengthen the V-Line organization and, subsequently, the service it provides to the public.

A. Performance Measurement

Performance of the program can be measured by numerous factors. A few measures have been selected that should be implemented by V-Line Transit staff. The recommended performance measures will help staff to complete the following functions and compare V-Line service with other national public transit standards:

- ◆ Evaluate various expense categories;
- ◆ Decide what service mode is best for future expansions in the local area and region;
- ◆ Evaluate results from a previous service or newly implemented operational change;
- ◆ Document the impact or improvement of service; and

- ◆ Convince local and regional stakeholders that transit service is a positive and necessary investment in the community.

V-Line has established an organizational mission and goals for providing service for Valparaiso. That mission must be firmly rooted in performance measures to sustain progress.

V-Line is a program that strives to serve the transportation demands of a geographically defined service area with moderate- to high-population densities. Transportation needs include providing employment- and education-related transportation for commuters and students within the city limits; and local transportation for social activities, appointments and shopping.

V-Line faces an opportunity to expand its services to improve customer service, and the risk of spreading its resources too thin while honoring the current demands and preparing for the county-wide and regional employment opportunities as well as health care locations that recently relocated beyond the city limits. Meaningful performance measurement based on historical and current statistics will help V-Line to refine its priorities, mission, and goals while continuing to provide top quality service within its financial resources.

Performance measurement may be applied to all aspects of transit service from maintenance to dispatching to fuel efficiency. This report recommends a few service effectiveness performance measures for V-Line in the following paragraphs. It is important to remember that collecting information for performance measurement is not productive unless the information is applied.

Therefore, the first step for V-Line is to decide which measures are most important and then develop the responsibility of monitoring performance in a manner that will ensure that the system is progressing toward cost effectiveness and other organizational goals. Some recommended performance measures are:

- ◆ On-Time Performance;
- ◆ Trip Denials;
- ◆ Cost and Service Effectiveness; and
- ◆ Economic and Community Impact.

On-Time Performance: On-Time Performance refers to the level of success V-Line exhibits for remaining on the published deviated fixed-route schedule. There are many factors that can impact on-time performance including traffic congestion, weather, vehicle breakdowns, and unrealistic scheduling. When any of these factors occurs, it can lead to long waits for passengers attempting to ride the bus, extra time for the scheduler/dispatcher, and unhappy passengers and drivers.

V-Line policy allows for a pick-up window of 10 minutes before or after the scheduled pickup time for the routes and deviations. RLS recommends that V-Line use driver manifest logs to track on-time performance of each vehicle on each route. Patterns of early or late pick-ups will indicate a need for an adjustment in the schedule. This measure will require an additional duty for an office staff member who will be responsible for entering the actual pick-up times into a spreadsheet and comparing the actual to the scheduled time. If a pattern of late pick-ups is revealed, V-Line staff

should investigate the reason for the pattern and respond by adjusting the schedule to a more accurate timetable or otherwise adjusting the delivery of that service.

Many software packages, including but not limited to RouteMatch™ and Trapeze™ which provide real time computer aided dispatch, have the ability to track on-time performance. Software packages come with additional purchase, installation, and maintenance expenses that should be carefully considered. As a low-cost alternative, on-time performance can be easily tracked using a Microsoft Excel™ spreadsheet.

As part of this study, RLS monitored on-time performance for each route by conducting an on-board survey to sample performance. The evaluation resulted in identification of the routes and stops where on-time performance was weakest. V-Line should consider adjusting its printed schedule so that it can improve performance. Many times, routes run late to certain stops but make up time later in the route to bring it on schedule again. A more balanced schedule will result in happier passengers and more relaxed drivers. A sample of potential stops in the schedules that should be reviewed is provided in the following table.

Table 8: Stops to Consider for Schedule Changes Due to On Time Performance Issues

Route Name	Stop
Yellow (weekdays)	Campbell & Lincolnway
Yellow (weekdays)	Andover Apartments
Green (weekdays)	Wal-Mart
Green (weekdays)	Target
Green (weekdays)	Cinemark Movie Theater
Green (weekdays)	Heart Center
Green (weekdays)	Michigan & Indiana
Brown (weekdays)	Indiana & Michigan
Purple (weekdays)	VU Student Union
Purple (weekdays)	K-Mart
Purple (weekdays)	YMCA
Yellow (Saturday)	Michigan & Indiana
Yellow (Saturday)	Social Security Office
Yellow (Saturday)	Michigan & Indiana
Brown (Saturday)	Indiana & Michigan
Brown (Sunday)	Indiana & Michigan
Red (Friday - Sunday)	VU Student Union
Red (Friday - Sunday)	Wal-Mart
Red (Friday - Sunday)	YMCA
Red (Friday - Sunday)	VU Student Union
Orange (Friday - Sunday)	Dunes Station
Orange (Friday - Sunday)	VU Student Union

Source: On-Time Performance Survey, 2014

Trip Denials: Trip denials with route deviations are an indicator that the public is utilizing resources but that capacity, hours of service, and/or service area are not sufficient to meet demand. Recording the reason for a trip denial is a planning tool for developing the service to meet the requirements of the area or population. V-Line defines a trip denial as a trip that cannot be rescheduled within one-hour before or after the requested time.

Trip requests that fall outside of the service hours or service area of the transit system are not counted as denials. If a trip request is within the service hours and/or service area and V-Line is unable to schedule the trip within one-hour of the requested time, it becomes a trip denial and should be recorded in a trip denial log. RLS strongly recommends that V-Line record actual trip denials as well as trip requests that it receives for transportation outside of service hours or service area. While the latter is not a trip denial, it is a strong indicator of latent demand and a good planning tool for future adjustments to the V-Line service.

Currently, V-Line does whatever it can to accommodate a passenger request for a deviation. Sometimes, this may mean running late on a portion of a route, or sending a rescue vehicle. As the system continues to grow and expand, these solutions may not always be feasible. It is recommended that careful tracking of denials, and/or trends when a rescue vehicle is deployed to assist the scheduled vehicle that has reached capacity or is otherwise unable to meet a passenger's pick-up/drop-off deviation request.

Cost and Service Effectiveness by Route: Cost and service effectiveness are measures of the amount of service available in relation to the amount of service consumed. The measures and data should be analyzed not only at the system level, but also at the route level. Analysis should be conducted by day of week and time of day, all in order to facilitate accurate management of scarce resources.

Measuring cost and service effectiveness involves asking the question, "How much public transit service revenue was received, at an established price, in relation to the amount of service available?" The more passenger revenue in relation to service output, the higher the level of service effectiveness.

A Sample of Cost and Service Effectiveness Performance Measurement for V-Line

Recommended Measure #1: V-Line currently monitors Daily Trip Logs (ridership counts) to monitor performance on a daily basis, in terms of passengers and fare revenue. Monitoring this measure of **fare recovery per passenger** should be performed on a monthly basis so that V-Line can compare its progress. Performance benchmarks can be set based on a comparison to previous years as well as a comparison to peer transportation systems. Keep in mind that peer systems are not exactly the same as V-Line, so some range of difference in performance will always exist.

Recommended Measure #2: Measurements at the route level, including the number of **passenger trips per revenue mile and hour** are typically called effectiveness indicators. Effectiveness indicators can be calculated based upon the information that V-Line already collects on a daily basis.

Therefore, no additional collection activities on the part of the driver are required. The additional activity is at the level of the City of Valparaiso and the V-Line management in actively calculating and reporting these productivity numbers.

Recommended Measure #3: Measurements at the route level of the **cost per revenue mile and hour** are typically called efficiency indicators. The current service contract is billed at an hourly rate. The operator does an excellent job of providing the number of hours and miles of service for each route. It is recommended that the City and the operator take its reporting to another level by calculating and monitoring the actual cost per revenue mile and hour each month. This measure will help the City to understand the fluctuations in service and the actual cost per mile and hour of operations for each route. Awareness of the actual cost per unit of service will be useful for future decisions on route modifications, especially at times when revenue is especially limited for the long term.

Recommended Measure #4: **Cost per passenger trip** is a strong cost-effectiveness indicator. The operator tracks the number of passenger trips through the use of a driver log sheet. The data is provided at the route level by day of week to the City. It is recommended that the operator or the city also calculate the cost per passenger trip.

The above noted recommended measures and the currently tracked data are strongly recommended. Additional measurements also may be included but, as a best practice, V-Line should only require drivers to collect the data that will be applied to performance measurement. Collection of data that is not tracked or measured creates an unnecessary duty for the drivers and managers.

Economic and Community Impact Measures: The economic and community impact of public transportation pertains to gauging the impact that V-Line has on interconnecting organizations, communities, and residents. One of the best methods for measuring impact is to determine what would happen if V-Line were not operating a specific route or type of service. Generally speaking, traffic congestion would increase in certain areas of town because more cars would be on the roads, and it is likely that air pollution also would increase. More specifically, V-Line can measure the Economic Impact of transit service by measuring the number of passengers who have no other option for transportation to work, medical facilities, or shopping. Results from the on-board survey conducted as part of this study can be used to substantiate the number of people who use V-Line for various purposes as well as the number of passengers who have no other transportation options. Other measures including public meetings and focus group meetings with the universities, and interviews with local stakeholders support the economic and community impact of V-Line.

B. Marketing and Passenger Information Materials

The second recommendation of Alternative 1 is to improve the clarity of marketing and passenger informational materials. The best marketing opportunity for V-Line appears to be its vehicles that travel through the area, word-of-mouth, as well as its printed schedules and maps. V-Line drivers also are quite recognizable and active in the community, and it appears that they are generally well received. Maximizing on the existing visibility and reputation is a no-cost marketing strategy that will continue to work in V-Line's favor.

Utilization of the V-Line website, Facebook page, and DoubleMap™ for up-to-date service information is also successful for the system, according to passenger survey feedback. V-Line should request other local organizations and governments to include the link to the V-Line website on their printed information and websites as well to further expand the outreach efforts without increasing the marketing expense budget.

It is also recommended that Doublemap be put on a television at Harre Union and at Ivy Tech so that V-Line passengers can be prepared for the arrival of the next vehicle.

Maps and Schedules

Several passengers and other participants in public meetings, including input from individuals who speak English as a second language, recommended improvements to the V-Line schedules and maps. RLS understands that V-Line is planning to work with a marketing professional to improve its maps and schedules. It is noted that research conducted during this study supports the need for improving printed V-Line materials. In particular, the map should, at minimum, illustrate the location of all timepoints on the schedule. The map should also identify more major street names as reference points. As an additional measure, the map could identify stops that have benches or shelters, and the stops that are accessible by wheelchair.

Travel Training for Valparaiso University and Ivy Tech Students

During their freshmen year, Valparaiso University (VU) students are not permitted to have a car on campus. As a natural result, many freshmen use V-Line as their primary resource for transportation to off-campus locations including apartments, shopping areas, restaurants, and entertainment. VU freshmen learn about V-Line through their student orientation process. As part of that process, a current student at VU teaches interested freshmen how to use V-Line. This informal travel training practice is a benefit to the students and V-Line. It is recommended that V-Line take measures to formalize the travel training to freshmen students and expand it to all VU and Ivy Tech students, not just freshmen. To do so, it will be necessary to advertise the training program on the V-Line website, on V-Line printed materials, and at VU and Ivy Tech. It is recommended that V-Line build a partnership with VU and Ivy Tech to use student volunteers as travel trainers.

Incentives for Valparaiso University and Ivy Tech Students

As an incentive to encourage students to continue to ride V-Line after their freshman year, the transportation provider should explore incentive programs and prizes to reward students for frequently riding V-Line. Incentives such as grand prize drawings for the students who use V-Line most frequently, and/or discounts at local restaurants are recommended.

Furthermore, for those students who are living off campus at apartment complexes, it is recommended that V-Line discuss opportunities for the apartment complex(es) to offer a discount on rent for students who use V-Line instead of a personal automobile.

V-Line should also discuss the benefits to the University of encouraging students to use V-Line rather than paying for parking on campus. Public transit is an effective measure in many communities for reducing the parking lot maintenance costs for universities. It is often more

affordable for universities to contribute to public transit than to expanding or improving upon student parking lots.

Bus Stop Signs and Shelters

Passengers and potential passengers who are unfamiliar with V-Line routes and schedules may be further confused by the absence of a bus stop sign where the bus regularly stops, or the presence of a bus stop sign where the bus does not regularly stop. Public transportation must be easy to use and understand. Otherwise, the new passenger may be fearful of missing the bus or getting stuck on the bus if they are not confident about where it will stop or what time it will arrive at a specific stop. Bus stop signs and posted schedules help to reduce fear and insecurity about using public transportation and improve the public's understanding of the service.

V-Line posts a schedule for the deviated routes on the city's website and makes the printed version of the schedule available to the public. The schedule includes times and locations when the bus will depart from timepoints. The current bus stops listed on the schedule include locations such as VU Student Union where the bus stops, but there is no sign at the Student Union to indicate where a passenger should stand to wait for the vehicle. Also, the passenger who does not have a printed schedule does not know when the vehicle is scheduled to return. The combination of these factors could cause a potential passenger to miss a vehicle because he or she is waiting in the wrong place at the wrong time, or simply decide not to use V-Line because he or she doesn't understand how to use it. For this reason, it is recommended that V-Line post bus stop signs at all locations where the vehicles make scheduled stops and remove signs where the bus no longer stops.

Posting schedules or route colors on or near the signs will also help with clarifying information to the public. Posted schedules and bus stops may also reduce the number of calls per day to the V-Line dispatcher from passengers who are unfamiliar with the schedule.

Bus shelters are another amenity that serves the dual purpose as a benefit to passengers and a marketing opportunity. It is recommended that V-Line strategically plan locations of bus shelters at its busiest stops and transfer points where passengers are likely to wait. According to the onboard survey results and observations, recommended locations for shelters (based on productivity of the stop) are as follows: Transfer Points; Andover Apartments; Sturdy and Chicago; Laporte and Legend; Target; and, Wal-Mart. It is noted that some of these locations are equipped with shelters or benches today. If so, this data supports that amenity.

It is understood that property restrictions may apply, especially at local businesses. Therefore, if a bus shelter is not permitted, V-Line is encouraged to request permission to stop near the entry/exit of the local business so that passengers may have the option wait inside for the bus to arrive.

Publicize Connection Points and Helpful Hints

Frequent V-Line passengers understand that on weekday and Saturday afternoons, they can connect between the Brown and Green Routes at Target. Other connection opportunities, such as at Wal-Mart which is served by the Red, Green, and Brown Routes, are also well known by frequent passengers who are skilled at reading the schedule. It was revealed through public meetings, however, that not all passengers realize that connections are possible at these and potentially other

locations. The connections could reduce ride time for the passengers if the connecting route goes in the opposite direction of the route the passenger took to get to the location, thereby improving customer service.

It is recommended that V-Line publish on its revised schedules and its website some “Helpful Tips” to using V-Line. Tips such as connection opportunities should be included. It is noted that a connection to a route going in the opposite direction is not a transfer and does require the appropriate passenger fare.

Market V-Line and ChicaGo Dash as One Entity

Benefits of marketing the ChicaGo Dash service and V-Line as one entity may bridge the gap between V-Line and the passengers who only utilize the ChicaGo Dash service but not the local V-Line routes. V-Line should consider posting informational materials on the ChicaGo Dash bus to keep its passengers informed about services offered by V-Line. It is recommended that the combined marketing efforts of these two services are included in the Marketing Study (planned for 2014/2015).

C. Distribution of Passes

During the process of analyzing the routes and gathering public input, the topic of distribution of V-Line bus passes was explored. Currently, V-Line Passes are sold only at City Hall; that is, V-Line passengers must travel to City Hall to purchase a pass. The process is quick and simple for passengers once they arrive at City Hall. However, if a passenger is relying on V-Line for a ride, he or she may spend up to an hour waiting for his or her ride home because of the current schedule of bus service to City Hall which has a one-hour frequency during business hours.

Therefore, vending machines or multiple manned vending areas for the sale of passes at locations that are more convenient is recommended to improve customer service. There are three potential approaches for V-Line.

Vending Option #1: It is suggested that V-Line consider forming agreements with another local business or entity such as Valparaiso University and/or Strack & Van Till where V-Line passes may be sold. A strict process of recordkeeping for passes, similar to the process used by the City, must be maintained. However, if such a process can be implemented with these community partners, the added convenience to V-Line passengers is likely to result in an increase in sales of V-Line passes.

Vending Option #2: Another vending alternative to consider is implementing a process for mailing passes to passengers who send a payment. The mailing process would require that the passes are printed and ready for distribution with ample time to process payments that are received and send the pass to the passenger through the U.S. Postal Service.

Vending Option #3: V-Line could explore the opportunity to purchase kiosks that sell V-Line passes. Passes could have a magnetic strip, or not. This step requires a significant change in the pass format and the recordkeeping process.

Option 1: Vending non-magnetic strip “Flash Passes” which do not require a swipe through a farebox. The costs associated with this option would involve purchasing and installing a ticket vending machine. There are many different types of machines that can be used (i.e., a simple paper printer, public transit specific machines, ID card systems, or amusement park prepaid value cards). All of the machines have the options of printing a value and/or time stamp to validate the purchase of the card. It is recommended that the City discuss with Valparaiso University and Ivy Tech their procedures and software for producing student/staff/faculty ID cards. It may be most appropriate for the City to purchase the same ID card software when producing its own “Flash Passes.”

Pros

One of the benefits of purchasing kiosks that print “Flash Passes” is the price. The ticket vending machine price can be slightly less expensive as it would not have to be a transit specific machine. This option is also less expensive because V-Line would not have to purchase compatible fareboxes. The passes would be shown to the driver when boarding and not swiped or inserted into a farebox. With no new fareboxes to purchase, the long-term maintenance costs would be less than the ones suggested in Option 2. Furthermore, the possibility of sharing the software used by Valparaiso University, Ivy Tech, or another local employer that prints ID cards, opens the possibility of developing a new local partnership that could assist with generating additional local funding for Federal match requirements.

Cons

Some of the most significant detractors for this option are the accuracy in ridership counts, added driver responsibility, fraud, and increased administrative activities. Ridership numbers may become less accurate with a “Flash Pass” as the driver would have to continue to manually count passengers using passes.

Also, depending upon the type of pass that is implemented, fraud can be an issue with passengers who would use someone else’s pass to board a vehicle.

Another detractor for the “Flash Pass” ticket vending machines would be the increase in administrative costs. In order to prevent fraud, passes would have to be updated on a pre-determined time frame so that drivers would be able to easily identify the valid pass. This is similar to the process currently followed by V-Line.

Option 1 would not allow for as many types of passes as Option 2 (below) will allow. A variety of passes would not be advised since the drivers would be responsible for counting the passengers who use the pass. If too many types of passes are created, a driver may unknowingly allow a fraudulent pass.

Option 2: The second option involves the purchasing of a kiosk that would sell V-Line passes with a magnetic strip and/or par code on the passes. These passes would allow for fare box integration that would require the passenger to insert or swipe the pass through the farebox.

The costs associated with this option would involve installation of ticket vending machines and maintenance throughout the life of the machine. These machines could be more costly than those

described in Option 1, but would be more transit specific. Because the machines will be more transit specific, V-Line will have the option of printing many types of passes that would easily integrate into the system.

Pros

Option 2 provides many reasons to purchase the magnetic strip ticket vending machines. Because the passes would be inserted or swiped into a farebox, the accuracy of ridership counts should be better than the manual counting option used in Option 1. The passes would also decrease fraud as a value and/or time frame can be put on the pass that then would expire once the threshold is reached.

Purchasing a ticket vending machine that produces magnetic strip passes also allows for V-Line to implement multiple card types. Because of all of the information that is stored on the card and read through the farebox, drivers would not have to manually count the different fare options.

Cons

Option 2 is more expensive to initiate and maintain, compared to Option 1 because of the purchase and maintenance of new vending machines and fareboxes. V-Line should consider increasing marketing efforts, to highlight the convenience of the new pass, as a measure to encourage increased ridership and get a return on investment.

Conclusion

Options 1 and 2 each have benefits and consequences. Both involve maintenance of the vending machines and administrative costs. Both would also involve increased security costs and/or purchasing locations where the machines will not be vandalized. However, the costs may outweigh the benefit of improved ridership data accuracy (Option 2 only) and improved customer service. Also, V-Line would have the option of implementing more fare pass options (Option 2 only) that may boost ridership and be beneficial to passengers such as a Day Pass or Weekend Pass.

D. Create a V-Line App

V-Line passengers have the option to select the “Bus Tracker” link on the V-Line webpage to find the real time location of their V-Line Bus. While Bus Tracker is an improvement in customer service for V-Line, passengers are reporting that it is unreliable and not user-friendly. Bus Tracker is offered through a program called DoubleMap™. As the City continues to work with DoubleMap™ to improve the accuracy of the program, it is recommended that the City also explore opportunities to create a stand-alone application for smart phones and tablets that holds the bus tracker information. According to public survey results, 83 percent of respondents have a smart phone; and passenger survey results indicate that 68 percent of V-Line passengers use a smart phone. An application will improve the convenience of the bus tracker information and enhance the V-Line customer experience because it allows for one-step access to information rather than going through the link on the V-Line website or saving it as a favorite web page.

The costs of developing an application that accesses real time data can range from \$8,000 to \$50,000 depending upon the developer and the level of interaction incorporated into the application. This

estimated price range should include applications that access a database for information (i.e., the real time location of buses). More complex applications can range higher in price.

ALTERNATIVE 2: IMPROVE REGIONAL TRANSPORTATION OPTIONS

Valparaiso is in a uniquely transportation-rich environment with access to commuter rail, local bus service, demand response transportation, and intercity bus services. Under the current structure, however, there are gaps in accessing commuter and intercity bus services that would connect Valparaiso residents with Chicago and other communities in the region where there are employment, medical treatment, shopping, or entertainment opportunities. Likewise, regional connectivity to bring people into Valparaiso for the same purposes is not complete. As the hub of transportation for Valparaiso, V-Line is in a strong position to improve connectivity to the region. Regional connectivity is also a strong economic development approach as it is likely to attract employers as well as new residents to the City and more students to Valparaiso University and Ivy Tech.

Two approaches are recommended here for V-Line to consider.

A. Coordinate with Intercity Bus Operators to Add a Stop near Valparaiso

Public meetings and rider survey results indicated that Valparaiso residents, including Ivy Tech and Valparaiso University students, would like to have access to the intercity bus service that stops in Merrillville, Indiana. In particular, the route from Merrillville to the Chicago airports would be an advantage to Valparaiso University's growing international student population during the beginning of the academic year and before and after semester breaks. Students and non-students alike would benefit from additional access to the Chicago area as well as the other destinations offered by intercity bus services.

The intercity bus operators currently stop in the Valparaiso area at Broadway Café. Advertising this connection opportunity between V-Line For example, the Hoosier Ride service operated by Miller Transportation operates a daily route between two Chicago Greyhound Terminals in Illinois to Merrillville, Plymouth, and Indianapolis, Indiana. A one-way fare from Merrillville to a Chicago Greyhound Terminal on Hoosier Ride is \$17.00. The route covers U.S. 30 and runs past Valparaiso. A stop in Valparaiso near U.S. 30 would add minimal time to the Hoosier Ride route. For additional information about Hoosier Ride, see the website at <http://hoosieride.com>.

Another intercity bus operator, Coach USA, operates a route to the Chicago O'Hare and Midway airports with stops in Merrillville and Portage. Valparaiso should share the survey results from this study with Coach USA to make the company aware of latent demand that could be present from Valparaiso, and VU international students, in particular. Coach USA should have the option to locate a stop in or near Valparaiso.

Potential Funding Options

Two potential funding options to offset the cost of adding intercity bus connections are provided below. This is not an exhaustive list; other possibilities include contributions from local businesses and the colleges and universities that will benefit from the regional connectivity.

FTA Section 5311(f) Intercity Bus

V-Line and NIRPC should contact the Indiana Department of Transportation (INDOT) to explore the needs assessment process associated with justifying intercity bus service in Portage County or within the city limits of Valparaiso. If deemed appropriate by INDOT and NIRPC, a potential revenue resource for the intercity service may be available through the Federal Transit Administration's Section 5311(f) Rural Intercity Bus Service program.

Local Funding

V-Line or another local public or private transportation provider in the area, including taxis, may offer an on-demand, share-a-ride service during limited hours and days of the week for connections between Valparaiso and the existing intercity bus stops in Merrillville and Portage. The fully allocated cost of operating the trip (including capital expenses, fuel, labor, maintenance, insurance, and overhead) would be the responsibility of one or more local organizations. Service would be open to the public, and advertised as such.

One example of local funding would be a combination of revenue from public/private partnerships to cover the hourly cost of providing the service, minus the fare revenue paid by the passengers. V-Line should consider establishing a "premium fare" for connections to intercity bus providers.

It is strongly recommended that funding for the service be dedicated for at least one-year. As an effort to control costs, the service could be limited to specific hours of the day and/or certain days of the year that correspond to the beginning and end of school class schedules.

Estimated Cost Implications

The hourly operating and capital costs will depend upon the fully allocated costs for the transportation provider. It is likely that the service will need to be offered with a mini-van with capacity to handle multiple passengers and luggage.

B. Implement a Park-N-Ride and Shuttle to the ChicaGo Dash Valparaiso Village Station and Dune Park South Shore Train Station

B-1. ChicaGo Dash Park-N-Ride and Shuttle

Currently, the V-Line does not stop at Valparaiso's Village Station to connect with the ChicaGo Dash. According to the public survey results, more than 20 percent listed "connecting to the ChicaGo Dash" as one of their top three recommended V-Line improvements. Onboard passenger survey results indicate that 15 percent of current V-Line passengers use ChicaGo Dash, or would like to use it.

It is recommended that the City consider implementing a Park-N-Ride lot and deviated flex route service to connect with the Dash buses in the mornings and afternoons. Shuttles would need to meet the Dash bus four times in the mornings (between 5:30 AM to 7:15 AM) and four times in the afternoons (5:50 PM to 7:15 PM), Monday through Friday.

Potential Park-N-Ride lot locations to consider include:

- ◆ The Heart Center/Valplayso
- ◆ Lots near the Indiana and Michigan transfer point
- ◆ Town & Country Market
- ◆ K-Mart
- ◆ City owned parking lot(s)

Agreements with parking lot owners would need to be negotiated between the City and the parking lot owner. As a potential benefit to the parking lot owner, a park-n-ride may bring in additional business because it will be convenient for V-Line/Dash passengers to shop there.

Alternatively, the planned Transit Oriented Development project for downtown Valparaiso includes a parking facility that would be a natural fit for a ChicaGo Dash Park-N-Ride lot. Local businesses could be used as a temporary lot(s) until the garage is constructed and opened.

Staffing Implication

Because the shuttle service would operate a maximum of four hours per day and it is a service expansion, one (1) part-time equivalent driver in addition to the existing V-Line driver staff is necessary.

Cost Implications

At the projected hourly cost of V-Line service for 2014-2015, the annual operating cost implications for this alternative is estimated at \$42,193 per year, plus fuel. The cost of the parking lot and maintenance should be negotiated as a partnership between the owner of the lot and the City. The parking lot could be another opportunity for a public/private partnership in which the cost of using and maintaining the lot is provided to the City of Valparaiso V-Line as an in-kind contribution, which can be used as local match.

Potential Revenue

The additional Park-N-Ride to Dash shuttle route would be funded through a combination of local and Federal dollars, similar to the funding for V-Line and ChicaGo Dash. Park-N-Ride lot revenue should be derived from in-kind agreements between the lot owners and the City of Valparaiso. Additional passenger fare revenue will also be generated.

Ridership Implications

This alternative represents a service expansion. It is projected that the shuttle will serve approximately six passengers per hour of service. At this rate, the service expansion service alternative will produce an additional 6,240 annual passenger trips.

Capital Implications

An additional vehicle will be necessary to implement this service expansion. The City of Valparaiso should explore opportunities to lease a vehicle from Porter County Aging or another local provider that may have an idle vehicle during the hours of operation for the shuttle.

B-2. Dune Park South Shore Train Station on Weekdays

Passenger survey and public meeting results also indicated that passengers, particularly Valparaiso University students, would like additional access to the Dune Park South Shore Train Station. Currently, the V-Line Orange Route serves Dune Park South Shore Train Station Friday afternoon through Sunday night. Of the 46 passenger surveys received from the Orange Route during this study, 38 were going to the train station. This alternative recommends adding a deviated flex route to Dune Park on weekday mornings and evenings. The Dune Parke Shuttle would begin at the Indiana/Michigan transfer point and travel to Harre Union where it would assume the same route as the existing Orange Route. Exhibit 62 illustrates the potential shuttle service.

The schedule must correspond closely with the train schedule, just as the existing Orange Route coordinates with the train arrival and departure times.

Staffing Implication

Because the shuttle service would operate a maximum of four hours per day and it is a service expansion, one (1) part-time equivalent driver in addition to the existing V-Line driver staff is necessary. Depending upon the hours of operation for the route, it is possible that the driver for the ChicaGo Dash shuttle could provide at least the morning and possibly the morning and afternoon runs to the Dune Park train station between Dash shuttles.

Cost Implications

At the projected hourly cost of service for 2014-2015, the annual operating cost implications for this alternative is estimated at \$42,193 per year, plus fuel.

Potential Revenue

The additional Dune's Park Train Station shuttle route would be funded through a combination of local and Federal dollars, similar to the funding for V-Line. Additional passenger fare revenue will

also be generated. V-Line should consider offering this service at a “premium fare” due to the length of the trip.

Ridership Implications

This alternative represents a service expansion. It is projected that the shuttle will serve approximately six passengers per hour of service. At this rate, the service expansion service alternative will produce an additional 6,240 annual passenger trips.

Capital Implications

The ChicaGo Dash shuttle service will be provided with one vehicle. Because the Dash shuttle is only required for three to four hours per day, the same vehicle could be used to provide the Dune Park South Shore Train Station route, if schedules are built accordingly.

Exhibit 71 City of Valparaiso, Indiana Proposed Route



V-Line Route Study

Legend

- Proposed Route
- Interstate
- Highway
- Major Road
- Local Road
- City of Valparaiso

Source: U.S. Census
American Community Survey
5-Year Estimates 2008-2012

Summary

The following chart summarizes potential ridership, operating hours, and operating miles for the proposed additional routes listed under Alternative 2. The expenses and revenues are summarized at the end of this chapter.

Table 9: Summary of Annual Service Parameters, Alternative 2

Service Component	Passengers/Hour	Hours	Miles	Pass. Trips
ChicaGo DASH Shuttle	4.0	1,028	TBD	4,112
Service Component	Passengers/Hour	Hours	Miles	Pass. Trips
Shuttle to Train Station	3.0	1,028	18,247	3,084

Annual miles for the ChicaGo DASH shuttle will depend upon the location of the Park-N-Ride lot(s).

ALTERNATIVE 3: ROUTE STRUCTURE ALTERNATIVES

The following recommended route structure alternatives are intended to provide a combination of amendments to the existing deviated routes for the primary purpose of providing the most convenient service within the city limits of Valparaiso.

Any of the following route alternatives may be selected individually or in combination. Some routes may be deemed more appropriate for mid-term or long-term implementation as demand for transportation increases or changes due to fluctuations in the socio-economic conditions of the service area.

A. Partnering with HealthLinc

Remove or Modify Culvert

HealthLinc is a not-for-profit organization that provides primary and preventive care services for eligible individuals with low incomes. HealthLinc subsidizes the out-of-pocket cost to the patient to help him or her with transportation from home to the clinic. V-Line is a commonly used form of transportation for HealthLinc's clients.

The opportunity for HealthLinc and V-Line to strengthen its partnership is likely to lead to improved transportation service for customers of both organizations. V-Line would like to work with HealthLinc so that passengers would have a shelter or a place to stand that is protected from inclement weather conditions. However, V-Line has determined that the HealthLinc clinic location poses a safety risk for vehicles to enter and exit the parking lot.

On-site analysis suggests that the safety risk could be overcome if the culvert at the HealthLinc parking lot is removed or modified. If the culvert can be removed or modified, V-Line vehicles could

enter the parking lot safely and then exit safely into traffic. With this modification, V-Line could modify its route so that the stop location is closer to the HealthLinc door.

A V-Line Real Time Monitor in the Waiting Room at Healthlinc A second option for the partnership would be to place a monitor in the HealthLinc waiting room so that patients waiting for V-Line can see the location of the vehicle in real time and walk out to the nearest V-Line stop in time to meet the vehicle, reducing the need to enter the HealthLink parking lot.

Demand Management through Flexible Appointment Times

A third option that should be considered in combination with each of the above mentioned recommendations is for the HealthLinc appointment scheduler(s) to encourage patients to notify him or her if they are riding V-Line and, if so, schedule appointments with consideration of the V-Line route schedule. This added flexibility on the part of HealthLinc will improve the passenger's ability to arrive on-time to an appointment and reduce his or her wait time for a return trip.

Organization and Staffing

The partnership with HealthLinc requires no additional staffing or organizational changes.

Ridership Implications

Ridership at the HealthLinc stop is likely to increase as a result of the improved convenience and customer service achieved through this partnership.

Cost Implications

No additional operating costs will be incurred by V-Line for the above noted activities. If HealthLinc determines that it is feasible to remove or modify the culvert, expenses associated with that process will apply to the property owner.

Potential Revenue

Revenue for modifications for the removal of the culvert is the responsibility of the property owner, or otherwise, according to property lease or ownership agreements. The cost of purchasing a monitor to show the real-time location of V-line in the waiting room is the responsibility of HealthLinc.

Capital Requirements

If a monitor is added to the HealthLinc waiting room, the cost of the monitor will be incurred by HealthLinc. Real time location of the V-Line vehicles is already provided by V-Line through the Bus Tracker software to anyone with an internet connection.

B. Eliminate the Yellow Route Segment from Pointe Drive to Social Security Administration Office

Currently, as illustrated in Exhibit 64, the Yellow Route currently stops at the Social Security Administration Office on Calumet Avenue. In an effort to reduce the trip length on the Yellow Route without compromising ridership, it is recommended that the Yellow Route discontinue service to the

Social Security Administration. Instead, the route will serve Point Drive and then drive Southbound on Calumet Avenue.

The Social Security Administration stop has low productivity and also poses a safety risk because the V-Line vehicle makes an unprotected left turn out of the parking lot. However, if service to the Social Security Administration office is desired, it is recommended that V-Line serve it as a deviation.

Organization and Staffing

No additional staffing or organizational changes are required for this option.

Ridership Implications

Eliminating the stop at the Social Security Administration Office is not expected to impact ridership numbers. During the onboard survey and passenger count, there were no passenger boardings or alightings at the Social Security Administration Office. If no other changes to the Yellow Route are implemented, this alternative will allow the Yellow Route more flexibility in its schedule and help to improve its on-time performance during the peak hours of operation.

Cost Implications

This alternative will result in slightly lower mileage for the Yellow Route which may have a slight impact in fuel expenses. No substantial cost savings are associated with this recommendation.

Potential Revenue

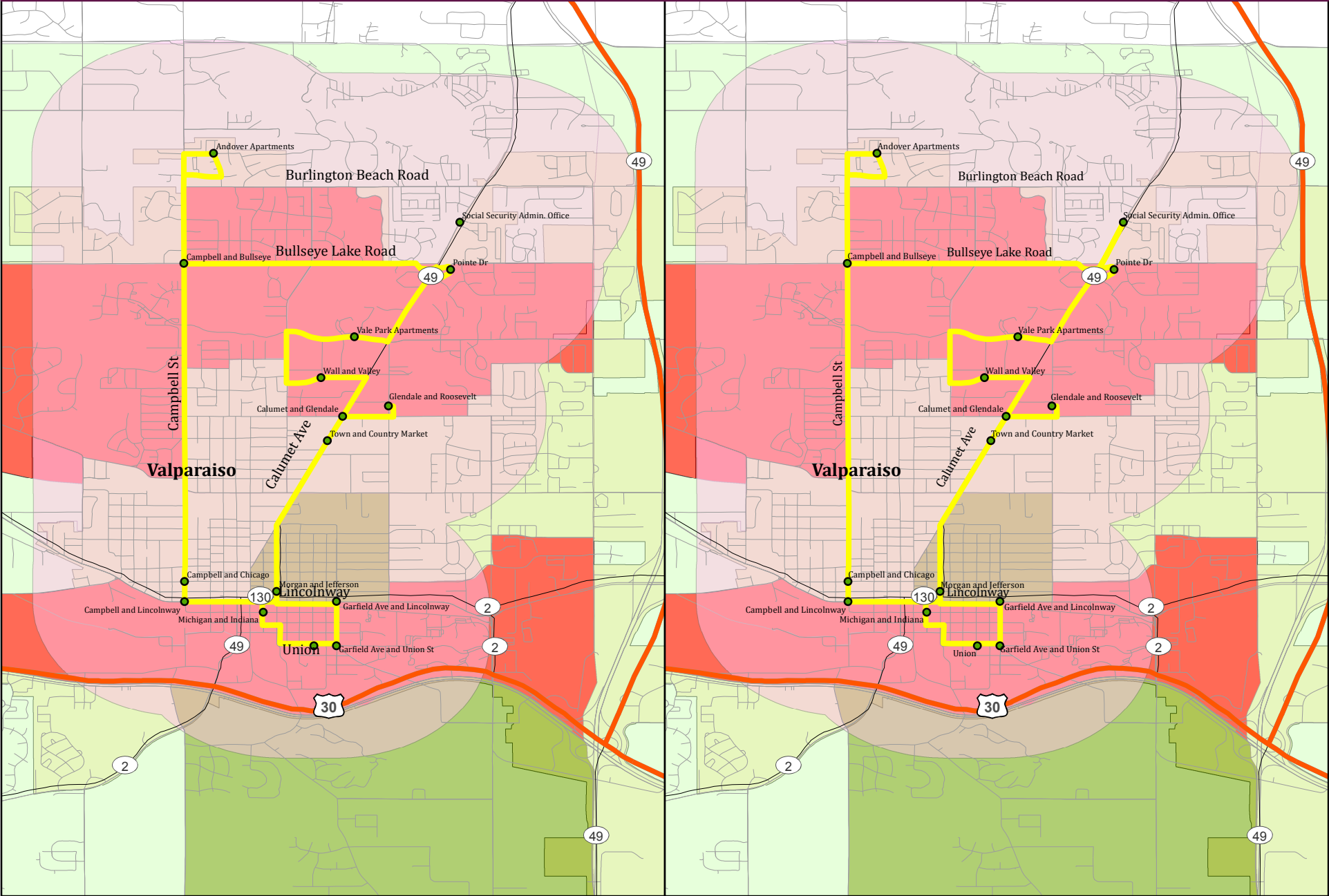
No additional revenue is necessary for the modification to the Yellow Route as it is described in this alternative.

Capital Requirements

There are no capital requirements associated with this recommendation.

Proposed Yellow Route

Current Yellow Route



C. Add A Route for Extra Service on Calumet & Laporte Avenues – “Blue Route”

Analysis during the Route Study revealed that most passengers that use the Yellow Route are daily riders. In fact, the Yellow Route had the highest percentage of daily riders for the system. According to survey results, approximately 45 percent of Yellow Route passengers are riding to and from work, while another 33 percent are riding for the purpose of shopping. Approximately 15 percent are riding for medical appointments.

Survey results also indicate that 34 percent of Yellow Route passengers are on board the vehicle for 45 minutes to complete a one-way trip. Another 20 percent ride for one hour to complete a one-way trip on the Yellow Route. A ride time of 45 minutes to one hour is long for any passenger on a local bus route, and especially long for daily riders and those who are traveling to work.

It is also noted that 65 percent of Yellow Route passengers walk one block or less to the bus stop where they board the vehicle. This is an indication that the stops are in convenient locations for most passengers. Another 17 percent of passengers walk four or more blocks to board the Yellow Route vehicle.

Alternative 3C recommends that V-Line increase service to the core of the Yellow Route (Calumet Avenue) by adding a deviated route to run from the Indiana and Michigan transfer point to the Pointe Drive Loop. This route would reduce the ride time for passengers who are traveling from the Indiana/Michigan transfer point to shopping, medical, or employment locations on Calumet Avenue. It will also share the responsibility for route deviations with the Yellow Route, which should result in better on-time performance for the Yellow Route.

In addition to relieving the Yellow Route, the Blue Route would add coverage to Roosevelt Road on each southbound run.

After stopping at Michigan and Indiana, the Blue Route will continue east on Laporte Avenue to relieve the Green Route and serve Wal-Mart and Target before returning to the Michigan and Indiana transfer point. The benefit of this Blue Route is that it increases frequency to the busiest segments of the City and, by doing so it relieves pressure on the Yellow, Green, and Brown Routes to improve on-time performance.

A sample of the suggested schedule for the proposed new Blue Route is provided in the following table. It is recommended that the Blue Route operate Monday through Friday from 8:30 AM to 10:30 PM and on weekends from 8:30 AM to 6:30 PM. The suggested daily operating hours correspond with business hours of many businesses along Calumet and Laporte Avenues.

Table 10: Suggested Schedule for New Blue Route North/South

Michigan & Indiana (T)	Indiana & Morgan	Morgan & Jefferson	Town & Country	Calumet & Glendale	Wall & Valley	Vale Park Apts.	Calumet & Vale Park Rd.
7:30	7:31	7:33	7:38	7:39	7:42	7:44	7:46
8:30	8:31	8:33	8:38	8:39	8:42	8:44	8:46

Calumet & Glendale	Roosevelt & Glendale (T)	Roosevelt & Evans	Roosevelt & Laporte	Target	Best Buy	Laporte & Roosevelt	Michigan & Indiana (T)
7:48	7:53	8:02	8:05	8:08	8:10	8:13	8:16
8:48	8:53	9:02	9:05	8:08	9:10	9:13	9:16

Organization and Staffing

Two additional full-time equivalent drivers will be required to operate the new route on weekdays and weekends.

Ridership Implications

At an average of five (5) one-way passenger trips per hour on weekdays and 4 trips per hour on weekends, the proposed Blue Route will provide 23,780 annual passenger trips. It is likely that some of these trips will be an expansion over current ridership and others will include riders who are currently using the Yellow, Green, and Brown Routes, but who will use the Blue Route as an alternative. Therefore, it is not a pure expansion of 23,780 annual riders. As the route is advertised, it is likely that ridership will increase.

Cost Implications

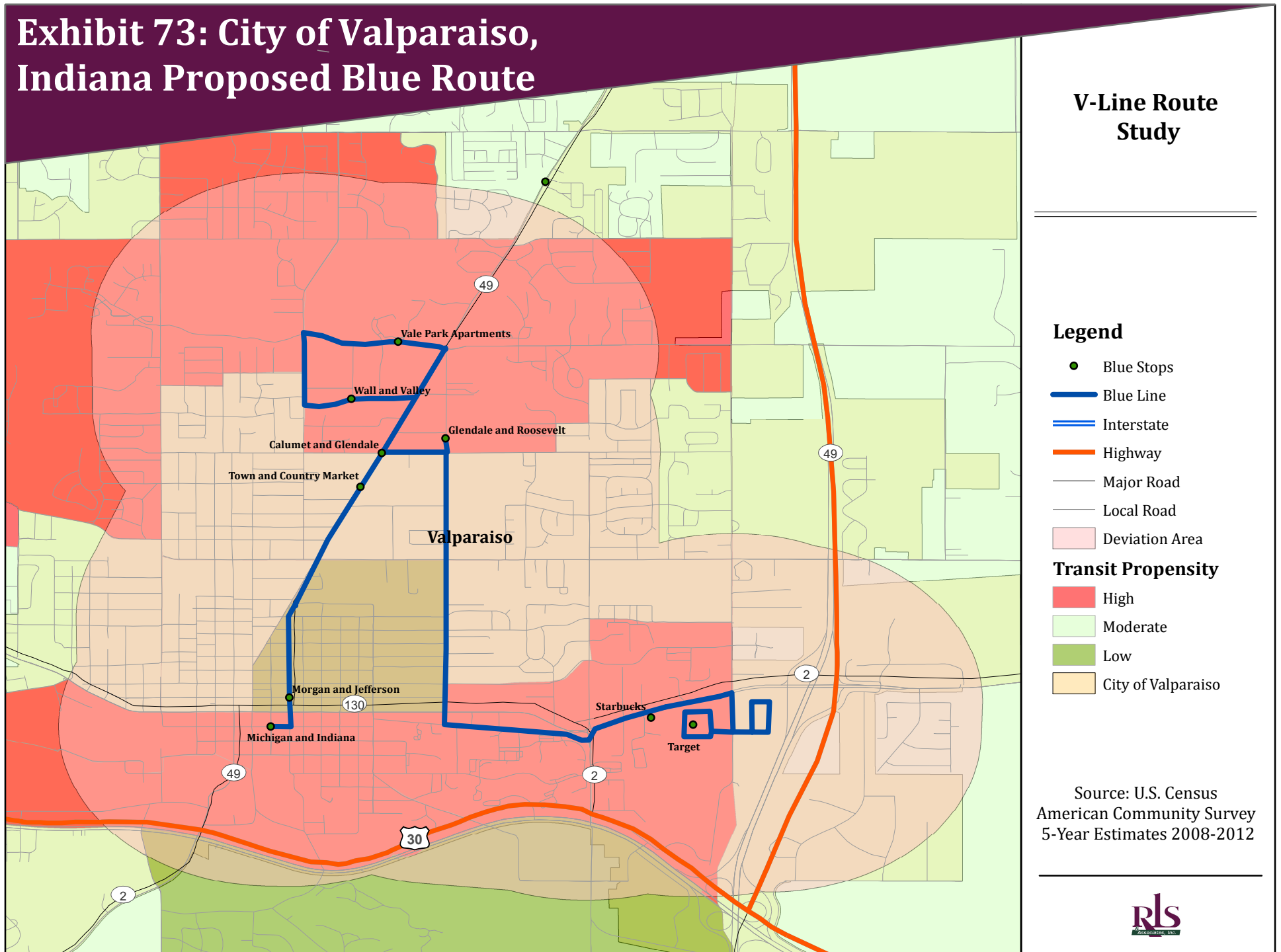
At the proposed hourly operating rate of \$40.57 per hour, the Blue Route will require \$188,732 per year plus fuel.

Please note, the annual cost would be reduced if V-Line opted to operate the Blue Route only during peak hours or on less than seven days per week. For example, the route could be operated as a trial service three or four days per week, and/or during limited operating hours.

Capital Requirements

One additional vehicle will be required to provide the Blue Route.

Exhibit 73: City of Valparaiso, Indiana Proposed Blue Route



D. Alternative Blue Route with Service on Route 30 – Three Days per Week

Public meeting and survey input indicated a strong preference for V-Line service to include the southwest portion of the city, including the area around Route 30 and the businesses on and around Barnstable Crossing/Ore Street (including the Department of Motor Vehicles Branch). In addition to public input, a review of transit propensity calculations indicates a higher than average likelihood that this portion of the city needs and would be likely to use public transportation if it were available.

Operating transit service to this area would represent a service expansion and would only be possible with additional operating and capital funding. Furthermore, because this alternative represents an expansion, the level of ridership and demand is not as apparent as with the previous recommendations. Therefore, it is recommended that Alternative 3D is implemented to operate three days per week, for six hours per day, until demand warrants an increase in service.

It is recommended that, as an alternative to the Blue Route recommendation above as Alternative 3C, the City consider an alternate route that would bring the Blue Route vehicle from the intersection of Roosevelt and Lincoln Highway to travel west on Lincoln Highway. The Blue Route would then travel South on South Garfield Street to Indiana Avenue. It would travel west on Indiana Avenue, past the Indiana and Michigan Transfer Point, to make a left on Washington Street. Then, the vehicle would travel south on Washington Street until it turns west on US. 30/West Morthland Drive. The vehicle would travel to the Valparaiso License Branch before turning back to travel east on US 30/West Morthland Drive. Finally, the Alternative Blue Route vehicle would travel north on Washington Avenue and return to the Michigan Street and Indiana Avenue Transfer Point. The Blue Route would have an approximate ten minute layover when deviations are not requested.

Table 11 indicates a sample schedule for the Alternative Blue Route, operating three days per week, six hours per day.

Table 11: Alternative Schedule for New Blue Route

Michigan & Indiana (T)	Indiana & Morgan	Morgan & Jefferson	Town & Country	Calumet & Glendale	Wall & Valley	Vale Park Apts.	Calumet & Vale Park Rd.	Calumet & Glendale
7:30	7:31	7:33	7:38	7:39	7:42	7:44	7:46	7:48
8:30	8:31	8:33	8:38	8:39	8:42	8:44	8:46	8:48

Roosevelt & Glendale (T)	Roosevelt & Evans	Roosevelt & Lincoln	Indiana & Washington	W.Morthland & Marsh	DMV Branch	US 30 & Washington St	Mich. & Ind.
7:53	8:02	8:05	8:08	8:11	8:15	8:18	8:20
8:53	9:02	9:05	9:08	9:11	9:15	9:18	9:20

Organization and Staffing

The proposed alternative route would operate three days per week, six hours per day. Assuming these statistics, one additional part-time equivalent driver would be needed to operate the route.

Ridership Implications

At an average of three (3) one-way passenger trips per hour, the proposed Alternative Blue Route will provide 2,700 annual passenger trips. It is likely that some of these trips will be an expansion over current ridership. As the route is advertised, it is likely that ridership will increase.

Cost Implications

At the proposed hourly operating rate of \$40.57 per hour, and a total of 975 hours per year, the Alternative Blue Route will require \$39,556 per year plus fuel.

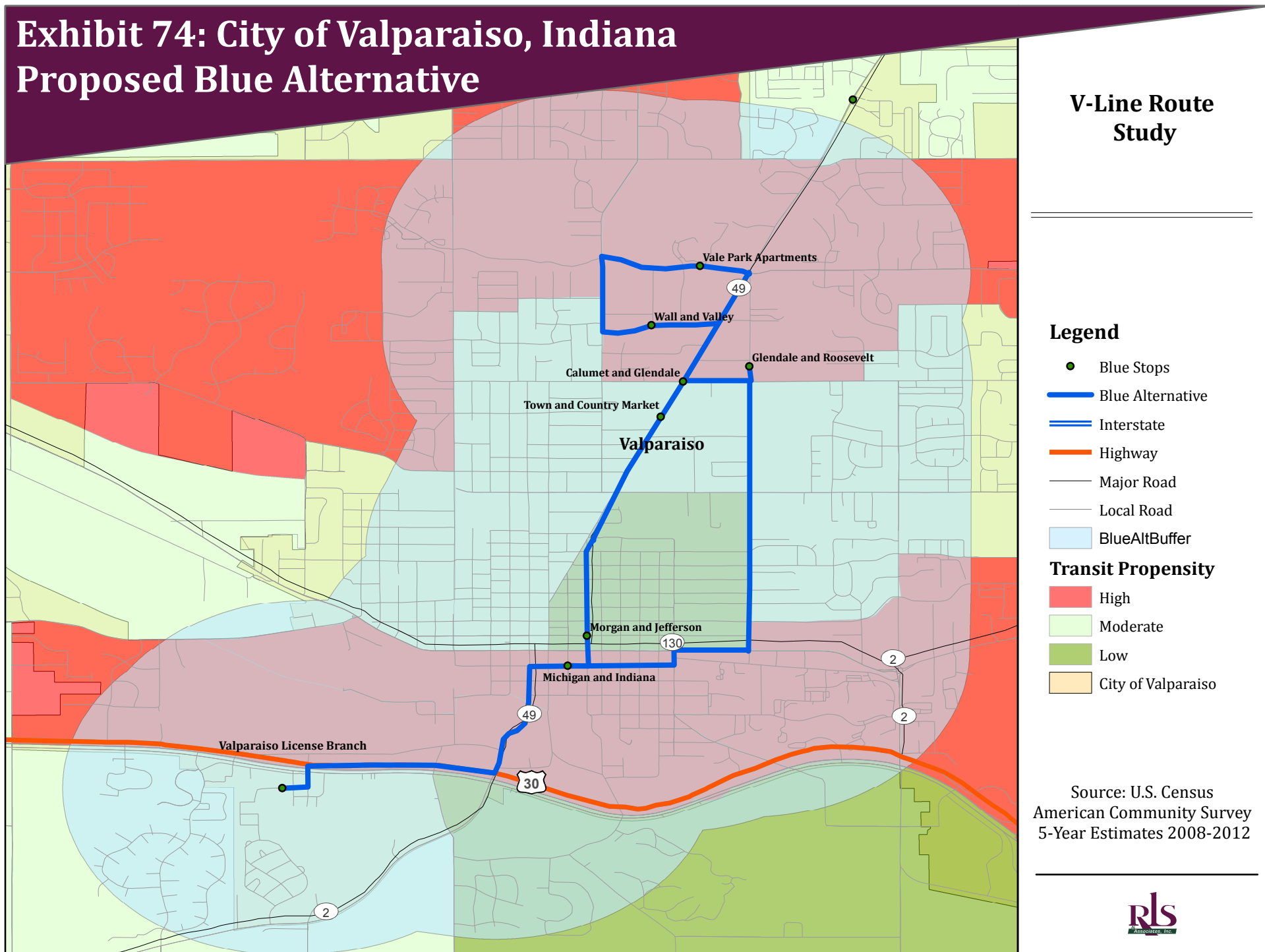
Please note, the annual hours allows for 30 minutes for the driver conduct pre- and post-trip inspections each day.

Capital Requirements

One additional vehicle will be required to provide the Alternative Blue Route.

Exhibit 74: City of Valparaiso, Indiana

Proposed Blue Alternative



Summary

The following chart summarizes potential ridership, operating hours, and operating miles for the proposed additional route listed under Alternative 3. Annual hours, miles, and passenger trips for the Blue Route are estimated based on operating the route seven days per week, 14 hours per day. Estimated miles for the Alternative Blue Route (for service on US 30) are estimated at one round trips per hour. Annual hours, miles, and passenger trips are estimated based on approximately 50 weeks per year (when accounting for holidays). The expenses and revenues are summarized at the end of this chapter.

Table 12: Summary of Annual Service Parameters, Alternative 3

Service Component	Pass. Trips/Hour	Hours	Miles	Pass. Trips
New Blue Route Weekday	3.0	3,612	18,060	10,836
New Blue Route Weekend	3.0	1,040	5,200	5,200
Alternative Blue Route - 3 Days/Wk	3.0	900	11,700	11,700

ALTERNATIVE 4: EXPAND THE SERVICE AND SCOPE OF V-LINE

The following recommendations are intended to address the opportunities for V-Line to gradually expand its service area and the range of services provided so that it can meet the customer service demands and economic development trends of the area.

A. Provide a Demand Response Service to the New Regional Hospital and Area Businesses, with Potential to Create a Route if Demand Warrants

Public meeting and passenger survey feedback indicated that the Regional Hospital, which is located outside of the city limits is a highly requested destination that is not served by V-Line. The location of the hospital is outside the current service area of V-Line. However, the City recognizes that it is a destination that is in demand for Valparaiso residents. Because of the lack of trip generators between the city limits and the hospital, a significant portion of route service to the hospital may be unproductive. Therefore, it is suggested that V-Line directly operate a demand response service during the initial implementation of service to the Regional Hospital. V-Line demand response transportation (dial-a-ride) would only make trips to the hospital with an advance reservation. If the City opts to contract with another provider for this service, potential contracted transportation providers include private transportation operators as well as non-profit organizations. Contracts should be selected through an official procurement process.

If requests for transportation from the Regional Hospital to Valparaiso were received at times that correspond with the Orange Route schedule (the return trip from Dune Station), passengers would be assigned to the Orange Route. If the Orange Route was not available, the demand response provider would be assigned the trip.

Hours of Operation

In an effort to control costs, the demand response service would be available for limited hours such as the following:

Early Morning:	5:30 AM to 7:30 AM
Mid-Day:	1:30 PM to 3:30 PM
Evening:	6:00 PM to 8:00 PM

Operating Costs

If directly operated, the operating costs would include driver labor for 1.5 full time equivalents, benefits, part-time dispatcher/scheduler labor and benefits, insurance, fuel, maintenance, marketing, and other miscellaneous expenses. If contracted out, operating costs will be determined based on the bids received from potential service providers.

Potential Revenue Sources

Due to the nature of the service being focused on the Regional Hospital as a destination, it is strongly recommended that the City discuss an agreement with the Hospital to contribute to the local match for implementing demand response public transportation services. Passengers would also be required to pay a passenger fare to help offset the cost of operating the trip.

Ridership Implications

The industry standard for demand response (or dial-a-ride) transportation is approximately 2.5 passenger trips per hour. It is likely that the average of 2.5 passengers per hour will be gradually achieved rather than occurring immediately upon implementation.

If service is operated 359 days per year for six (6) hours per day, ridership potential is approximately 5,385 annual passenger trips. If the number of passenger trips per hour reaches five (5) to six (6), V-Line should consider implementing a fixed or deviated route to replace the demand response (dial-a-ride) service.

Capitol Implications

One wheelchair accessible minivan is necessary for this service. Access to one back-up van is also necessary. The back-up vehicle could be shared with other V-Line services and/or coordinated with other local transportation providers.

B. Explore Opportunities to provide Coordinated Countywide Transportation

V-Line is a City system. It is very efficient and effect, and focuses on the travel needs within the City service area. However, the City is part of the County. The County has destinations that need to be accessed by City residents, and there are County residents that need to access jobs, education and medical services in the City. There are also people living outside the City that need to access destinations in other locations in the County outside of the City. Currently, Opportunity Enterprises, and the Porter County Aging and Community Services address some of the travel needs from outside the City to the City and within the County outside of the City. But, there are many needed trips that

are not served due to capacity constraints, operating hours, and eligibility requirements set by the countywide transportation providers.

V-Line is in a unique position to begin facilitating a countywide approach to transportation and to addressing the unmet countywide transportation needs. And, this can be done at little or no cost, at first.

It is recommended that V-Line convene a countywide coordination council, consisting of V-Line, social services agencies, private providers, intercity providers, and other interested parties. The purpose of the coordination council would be to identify countywide transportation needs and ways to address those needs.

The coordinating council would focus on service and non-service activities.

The service activities would be to identify service gaps, service duplications, unserved persons, and other transportation-related priorities that are determined and agreed upon by the group. Participating entities could then agree to supplement each other's systems by transporting each other's clients when appropriate, and for a fully allocated cost fee. Partners should identify times when one agency could serve a location by picking up clients from several entities, thus avoiding duplication and improving the utilization of vehicles. This process almost always results in increased ridership for all participating agencies.

The non-service activities would be designed to reduce costs and therefore to allow for more trips using current resources. Such non-service activities could include sharing training, fuel, maintenance, technology (such as scheduling software), planning and grantsmanship.

This type of coordination to address countywide needs is quite common, and has been successfully applied in many locations.

These coordination efforts will create an excellent picture of countywide mobility needs, and what changes are needed in the future, given current and projected funding levels. It then puts the stakeholders in a much more informed and effective position to identify unmet needs and the solutions to address them, as well as potential funding sources.

The coordination efforts will also provide a better picture of whether the current City transportation service model is sufficient to address countywide needs, or if a more Countywide-focused model would be better.

C. Extend Hours of Operation for the Yellow Route

The Yellow Route operates Monday through Saturday from 6:18 AM to 8:15 PM. On the passenger satisfaction rating scale, the route scored lowest in terms of hours of operation because passengers would like for the route to run later into the evening. During public meetings, participants reinforced that later hours of operation would enable them to work later shifts and/or complete

errands in the evenings after work. It is recommended that V-Line consider expanding hours of operation for the Yellow Route until 10:15 PM. This represents an additional two hours of service per operating day. The cost and projected ridership implications to extend hours of operation are outlined below.

Organization and Staffing

One additional part-time equivalent driver will be required to operate the extended hours of operation.

Ridership Implications

Assuming that ridership during the additional hours of operation will be four (4) passengers per hour, annual ridership for this alternative is projected to be 21,840. Ridership levels may gradually reach the average of four (4) passengers per hour after the service modification is advertised and people become more aware of the option.

Cost Implications

At the hourly rate of \$40.57 per hour, the estimated annual cost of adding two hours to the Yellow Route is \$25,316. This amount will be offset by the additional fare revenue that will be generated. Cost and revenue projections are provided at the end of this chapter.

Capital Requirements

There are no additional capital requirements for this alternative.

C. Extend Hours of Operation for the Purple Route

The Purple Route was implemented in December 2013. It currently operates two hours per day. The route demonstrated high productivity during the on/off passenger counts conducted as part of this route study. It is recommended that V-Line consider expanding the hours of operation for the Purple Route by two hours per day. The service area of the route will not change. Cost and ridership implications for the additional service are discussed in the following paragraphs.

Organization and Staffing

One additional part-time equivalent driver will be required to operate the extended hours of operation.

Ridership Implications

Assuming that ridership during the additional hours of operation will be four (4) passengers per hour, annual ridership for this alternative is projected to be 21,840. Ridership levels may gradually reach and exceed the average of four (4) passengers per hour after the service modification is advertised and people become more aware of the option.

Cost Implications

At the hourly rate of \$40.57 per hour, the estimated annual cost of adding two hours to the Yellow Route is \$25,316. This amount will be offset by the additional fare revenue that will be generated.

Capital Requirements

There are no additional capital requirements for this alternative.

ALTERNATIVE 5: IMPLEMENT FIXED ROUTES AND ADA PARATRANSIT SERVICE

Alternative five may address the issues of on-time performance and over-crowded vehicles for V-Line. By eliminating the deviations and implementing fixed route service with ADA complementary paratransit, V-Line routes may operate in a timelier manner with more capacity on the fixed route vehicles.

A. Fixed Route Service

The V-Line deviated route service is extremely successful in terms of its ridership and operating efficiency. As ridership on deviated routes increases, the ability to offer deviations and remain on schedule becomes increasingly difficult. As illustrated in the on-time performance evaluation, V-Line is maintaining a strong on-time performance record, but portions of the service area and peak hours of service often fall below the desired on-time performance standard of +/- 10 minutes.

Transit industry standards indicate that a deviated route system should consider transitioning to a fixed route service when ridership reaches an average of seven (7) passenger trips per hour. V-Line has achieved that standard. It is recommended that V-Line consider transitioning into a fixed route operation in the mid- to long-term planning horizon. As vehicle loads continue to increase on the routes, it will become more and more practical to transition into a larger vehicle fleet on the busiest routes, if not all routes. The larger vehicles are not as able to deviate into neighborhood streets. Therefore, a mix of vehicles for fixed route and paratransit service will be appropriate.

Organization and Staffing

There is no change in the staffing levels for fixed route services. Additional requirements for providing complementary paratransit service for ADA eligible consumers are discussed in Part B of Alternative 5.

Ridership Implications

Fixed route service does not directly impact ridership if the route structures and timepoints are unchanged. The exception to that rule is that passengers that qualify for ADA complementary paratransit service will ride paratransit rather than the fixed route vehicle.

Cost Implications

No additional operating costs are expected if annual operating hours do not change. However, additional costs for the addition of the regulatory requirement to provide complementary

paratransit service for individuals eligible under the Americans with Disabilities Act (ADA) will be necessary. Such ADA service costs are discussed in the following paragraphs (Section B of Alternative 5).

Capital Requirements

V-Line should consider purchasing a mix of larger vehicles to serve the fixed routes, especially during peak hours. The existing vehicles will be dedicated to paratransit service.

B. ADA Paratransit Service

The Americans with Disabilities Act (ADA) of 1990 requires that complementary paratransit service is operated during all hours of fixed route operations. Therefore, if V-Line elects to become a fixed route transportation service, an ADA complementary paratransit plan must be developed and ADA complementary paratransit service implemented.

ADA complementary paratransit service is a demand response mode of service for individuals who are unable to navigate a fixed route mode of service. All ADA complementary paratransit passengers must participate in an eligibility process prior to receiving service. There are numerous approaches for completing the eligibility process. The minimum requirement is a signed verification from a medical professional that verifies that the applicant meets eligibility requirements. It is recommended that V-Line consider contracting with another nearby fixed route system to complete their ADA eligibility determination, at least until such time when the City becomes comfortable with the rules and procedures involved.

Passengers who do not meet the eligibility requirements for ADA complementary paratransit service will be eligible to ride the V-Line fixed routes at the appropriate fare rate. It is recommended that V-Line explore the latest guidance on how to ensure that the ADA eligibility roles are correct, and that ADA riders are encouraged and facilitated in using the fixed route service as much as possible, within regulations. Guidance can be found at this location http://www.fta.dot.gov/documents/Proposed_ADA_Circular_Amendment_1.pdf.

The Americans with Disabilities Act requires that ADA complementary paratransit operators verify that there is no pattern of trip denials for ADA eligible passengers. It is also required that passengers may schedule a trip with a minimum of 24 hours advance reservation. These standards are higher than those established for general public demand response transportation and must be monitored closely for compliance. There are six basic ADA service criteria, as follows:

- 1) **Service Area (Section 37.131(a))**: The minimum required service area for complementary paratransit service includes all locations within a $\frac{3}{4}$ mile corridor on each side of every route. It must also include the area within $\frac{3}{4}$ mile radius of the ends of a route. The regulations also require transit agencies to provide service throughout a “core service area.”
- 2) **Response Time (Section 37.131(b))**: Transit agencies providing complementary paratransit service must follow the response time requirements in Section 37.131(b), which cover when and how transit agencies must accept and respond to trip requests, how reservationists may

negotiate trip reservations with callers, and how far in advance callers may request trips. Transit agencies must “schedule and provide paratransit service to any ADA paratransit eligible individual at any requested time on a particular day in response to a request for service made the previous day” (Section 37.131(b)).

- 3) Fares (Section 37.131(c)): Transit agencies may charge up to twice the full, non-discounted fare for a comparable ride on the fixed route system.
- 4) Operating without Regard Trip Purposes and Priorities (37.131 (d)): Transit agencies must operate complementary paratransit service without regard to trip purpose. The prioritization of one trip over another in the final scheduling and dispatching process is also prohibited.
- 5) Hours and Days of Service (37.131 (e)): Transit agencies must provide complementary paratransit service, at minimum, all times during which they provide fixed route service.
- 6) Absence of Capacity Constraints (37.131(f)): Transit agencies are prohibited from operating complementary paratransit service in a manner that limits the capacity of the service. Examples of constraints include restrictions on the number of trips riders can request and wait lists for trips. Capacity constraints also include “any operational pattern or practice that significantly limits the availability of service to ADA paratransit eligible persons.”

Organization and Staffing

Using an estimate of up to two (2) available paratransit vehicles Monday through Saturday during peak hours, and one (1) on Sunday, it is estimated that the paratransit service will require a maximum of 6,978 additional operating hours for V-Line. This will include up to three (3) full-time equivalent employees (made up of a mix of full time and part-time employees, or just part-time employees).

Ridership Implications

At a rate of 0.36 passengers per hour (or approximately 30 passenger trips per week), the ADA complementary paratransit service could generate as many as 1,500 annual passenger trips.

Cost Implications

To be determined based on the contract rate. If, for example, the service was provided at the same hourly rate as the proposed deviated route (\$40.57 per hour), the ADA paratransit service would have an annual cost in the range of \$198,629. This includes one vehicle per hour of operation Monday through Saturday and 0.5 vehicles (equivalent) on Sundays. Paratransit represents an expensive option, but may be an effective alternative to purchasing larger vehicles on the deviated routes or placing additional vehicles on the routes to handle growing demand.

Capital Requirements

The existing V-Line vehicles will be dedicated to paratransit service if larger fixed route vehicles are purchased. Some smaller accessible minivans should also be considered for improved access to more narrow local roads as well as for fuel efficiency.

Summary

Each of the service alternatives included in this chapter are options based upon customer feedback and transit industry standards and practices. V-Line is an excellent service and alternatives suggested here are intended to build upon the success of the system and prepare it for future growth. Many of the current V-Line procedures and practices should continue, in addition to the suggestions included in this chapter. In particular, it is recommended that the City continues to contract out, rather than bring the service in-house. Some advantages that contracting services brings to the community include but are not limited to: (1) attracting competitive bids for service; (2) ability of the contractor to assemble assets; (3) contractor experience; (4) lower operating costs; and, (5) using the private sector as a partner.

It is further noted that many of the alternatives listed in this chapter require additional revenue. Therefore, implementation will depend upon available funds for expansion and priorities must be established. It is customary and recommended that local funding be derived from a combination of local resources including partner organizations that benefit from the service such as the City of Valparaiso, University of Valparaiso, hospitals, human service agencies, local employers, Ivy Tech, Chamber of Commerce, and other local businesses and organizations.

SUMMARY OF V-LINE ROUTE STUDY RECOMMENDED SERVICE ALTERNATIVES

Alternative	Description	Staffing Implication	Cost Implication	Ridership Implication	Capital Implication
1. STRENGTHENING THE STATUS QUO (Referencing pages 102-112 of Valparaiso Route Study.)					
1A: Performance Measures	◆ On-Time Performance; ◆ Trip Denials; ◆ Service Effectiveness; and, ◆ Economic and Community Impact.	No change	No change. But will provide information upon which future changes to service will be based.	Likely to result in improved customer service and higher ridership.	No change from existing capital requirements.
1B: Marketing and Passenger Information Materials	1. Maps and Schedules. 2. Incentives for Students. 3. Bus Stop Signs & Shelters. 4. Publicize Transfer Points & Other Helpful Hints. 5. Market V-Line and ChicaGo Dash Together.	No change	To be determined based on pending marketing plan. Marketing expenses are projected to increase.	Likely to result in improved customer service and higher ridership.	Additional bus shelters and bus stop signs will be purchased.
1C: Distribution of Passes	Distribute at more locations and by mail.	Additional responsibilities for recordkeeping and tracking the sale of passes.	Small cost of printing additional passes.	Likely to result in more sale of V-Line Passes.	No change.
1D: Create a V-Line App	A stand-alone application to show real-time bus locations.	No change	Price of creating an application.	Likely to result in improved customer service and higher ridership.	No change.

SUMMARY OF V-LINE ROUTE STUDY RECOMMENDED SERVICE ALTERNATIVES

Alternative	Description	Staffing Implication	Cost Implication	Ridership Implication	Capital Implication
2. IMPROVE REGIONAL TRANSPORTATION OPTIONS (Referencing pages 112-118 of Valparaiso Route Study.)					
2A: Coordinate with Intercity Bus Operators to Add a Stop Near Valparaiso	Provide potential ridership information and survey results to the intercity bus providers to request a new stop in Valparaiso.	No change.	No change.	No change.	No change.
2B: Implement Park-N-Ride and Deviated Route Shuttle for ChicaGo DASH and South Shore Train Station. Mon-Fri.	Park-N-Ride lots and shuttle service to the ChicaGo Dash station. Shuttle service to Dune Park Station on Weekday mornings and evenings	1 part-time driver 1 part-time dispatcher	Dash: \$40,342 plus fuel, per year. Train: \$40,341 plus fuel, per year.	Dash: 6,240 new annual riders Train: 4,160 new annual riders	Purchase of an additional vehicle will be necessary to expand the V-Line fleet. Vehicle could be shared.
3. ROUTE STRUCTURE ALTERNATIVES (Referencing pages 118-128 of Valparaiso Route Study.)					
3A: Partner with Healthlink	1. Remove or Modify Culvert 2. Monitor in the Waiting Room 3. Flexible Appointments	No change.	No additional operating costs to V-Line	Likely to result in higher utilization of the HealthLinc stop.	Purchase of a monitor for the HealthLinc waiting room.
3B: Modify Yellow Route	Discontinue Yellow Route from Pointe Drive to SSA Office	No change.	Less mileage for the Yellow Route will result in minor savings	This change gives V-Line the opportunity to (1) shorten the Yellow Route time schedule or (2) improve on-time performance. Both are likely to result in increased ridership.	No change.
3C: Add a Route on Calumet "Blue Route"	New route to run from Michigan and Indiana to the Pointe Drive loop. Relieves pressure on the Yellow Route schedule and increases frequency to Calumet Avenue.	2 FTE drivers on weekdays and Saturdays	\$188,732 plus fuel, per year.	23,780 (at 5 passengers per hour)	1 additional vehicle.

SUMMARY OF V-LINE ROUTE STUDY RECOMMENDED SERVICE ALTERNATIVES

Alternative	Description	Staffing Implication	Cost Implication	Ridership Implication	Capital Implication
3D: Alternative Blue Route	Similar to the service described in Alternative 3C, but with an additional extension to include service on US 30 in the south west portion of Valparaiso, including the DMB branch. Operation three days per week, six hours per day.	One additional part-time equivalent driver	\$39,556 plus fuel, per year.	2,700 annual passenger trips (Some are current passengers and therefore it does not represent a pure increase in ridership.)	1 additional vehicle required, three days per week during operating hours for the route.
4. EXPAND THE SERVICE AND SCOPE OF V-LINE (Referencing pages 128-132 of Valparaiso Route Study.)					
4A: Service to the Regional Hospital	Contract with a demand response provider to operate service, with potential to develop a route if demand warrants.	1 part-time driver	Will depend upon the operator of the service.	If service is operated 359 days per year for six hours per day, ridership potential is 5,385 annual one-way trips.	One wheelchair accessible minivan and one back-up vehicle.
4B: Coordinated Countywide Transportation	Explore opportunities with NIRPC for V-Line to become the lead entity for coordinated or integrated countywide transportation services. Partners would include Porter County Aging and Opportunity Enterprises.	Initially, no staff changes for the partnering providers will be required. As demand increases, additional staff may be required.	Will depend upon the nature of the relationship between partner organizations.	TBD based upon coordinated transportation agreements and negotiations that are appropriate for all partnering organizations.	No initial capital implications if existing vehicle fleets and scheduling software are merged.
4C: Expanded Hours of Operation for the Yellow Route	Extend hours of operation by two hours until 10:15 PM	1 part-time equivalent driver	\$25,316 plus fuel, per year.	21,840 (at 4 passengers per hour)	No change.
4D: Expand Hours of Operation for the Purple Route	Extend hours of operation by two hours	1 part-time equivalent driver	\$25,316 plus fuel, per year.	21,840 (at 4 passengers per hour)	No change.

SUMMARY OF V-LINE ROUTE STUDY RECOMMENDED SERVICE ALTERNATIVES

Alternative	Description	Staffing Implication	Cost Implication	Ridership Implication	Capital Implication
5. IMPLEMENT FIXED ROUTES AND ADA PARATRANSIT SERVICE (Referencing pages 132-135 of Valparaiso Route Study.)					
5A: Fixed Routes	Fixed routes with no deviations will replace the current deviated route structure	No change for the fixed route portion of the service (changes will be required to address the ADA paratransit requirement).	The additional costs are entirely included in the ADA paratransit service alternative (5B).	Not likely to have a negative impact on current ridership, with the exception of passengers who are currently requesting deviations but would not qualify for ADA paratransit service.	For the highest ridership routes (Green, Yellow, and possibly Brown) consider replacing current vehicles with larger vehicles for highest ridership routes.
5B: ADA Paratransit Service	Complementary paratransit service will be provided within a minimum of ¼ mile of all fixed routes. An eligibility process for paratransit service must be implemented.	Estimating two paratransit vehicles Monday through Saturday and one on Sunday: Up to three full-time equivalent drivers will be needed.	Estimated at \$198,629 per year.	Estimated at approximately 1,500 additional passenger trips per year.	Potential to use the current 16 passenger vehicles or smaller, lift-equipped vans.