

STAFF REPORT

SUBJECT: Dublin Student Transit Service Study and Recommendations

FROM: Michael Tree, Executive Director
Cyrus Sheik, Senior Transit Planner

DATE: June 4, 2018

Action Requested

Approval of recommended Phase I modifications and extensions to the Wheels supplemental fixed-route service in Dublin.

Background

As a supplement to its Wheels mainline service, LAVTA provides school-focused routes to middle- and high schools in Dublin and Pleasanton. With residential developments in eastern Dublin continuing to be completed at a fast pace, demand and ridership on the Wheels supplemental (school-focused) routes to and from Dublin High School in particular have continued to increase.

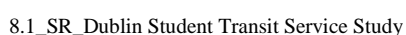
Staff asked Nelson\Nygaard Consulting Associates to conduct outreach and to gather information on the distribution and projected growth in school enrollment in Dublin, and to develop a small service- and capacity plan that could be implemented in a first phase this coming fall 2018, and in a second phase beyond that time.

The following table summarizes the existing Wheels routes in Dublin that serve students at area middle- and high schools.

WHEELS SUPPLEMENTAL ROUTES IN DUBLIN		
Route	Neighborhood(s) served	School(s) served
2	Positano Hill, Signal Hill, Silvera Ranch, Wallis Ranch, Emerald Glen	Fallon Middle School
501	Positano Hill, Signal Hill, Silvera Ranch, Wallis Ranch, Emerald Glen	Dublin High School
502	Bray Park, Emerald Glen, Wildwood Road	Dublin High School
503	Shannon Park	Dublin High School, Wells Middle School
504	Dublin Ranch	Dublin High School
Sweeper	Dynamic AM route covering Positano Hill, Dublin Ranch, Emerald Glen	Dublin High School

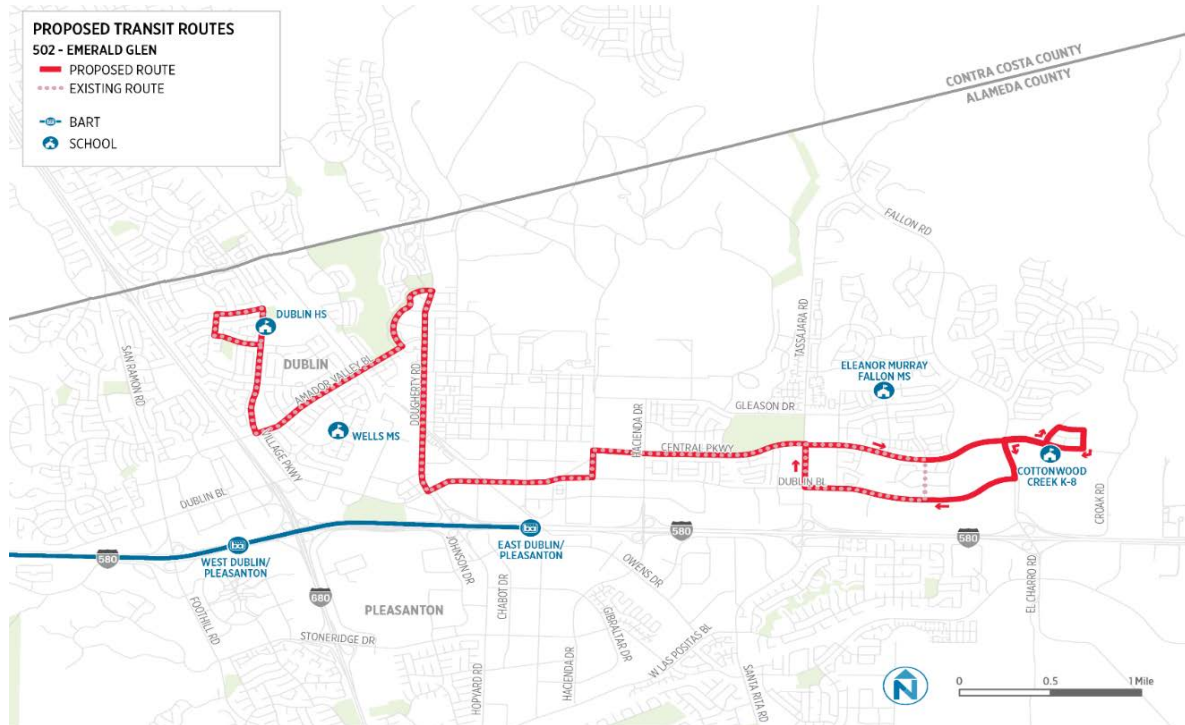
At its May 7 meeting, the Board of Directors received a presentation by the Consultant, outlining the draft recommendations of the study, which were also published on the Wheels website. Following input on those, the full draft study document has been completed and is attached to this staff report. Staff recommends that the Phase I elements of the report – which are operationally cost-neutral in total – be implemented with the fall 2018 schedule signup, as follows:

One of the feedback elements received as part of the study is that travel times on the existing #501 can be quite long – especially to/from subdivisions furthest to the east of the city. It is recommended that a new, expedited variant of route 501 be provided, traveling to/from DHS on a routing of Positano Parkway – Fallon Road – Gleason Drive – Tassajara Road – Central Parkway – Hacienda Drive – Dublin Boulevard – Village Parkway v.v. In conjunction with this, the separate sweeper bus that is operated in the AM would be discontinued. A map illustration of this alignment, which would be serviced in addition to the regular #501 routing, is shown below.



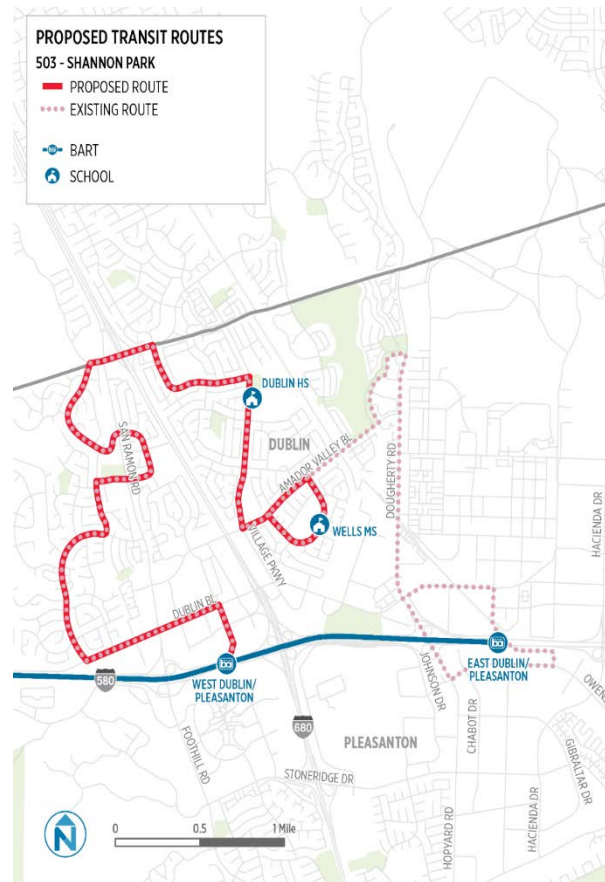
Route 502. The new subdivisions in the south Jordan Ranch area, surrounding the easternmost portions of Central Parkway, are transitioning to occupancy. Based on anticipated demand, it is recommended that the #502 be extended east from of its existing terminus, near Lockhart Street, to Jordan Ranch, as per the following map illustration. The extended service would pick up and drop off at a new bus stop that has been provided on Central Parkway in front of Cottonwood Creek School.

As Central Parkway does not currently connect thru to Croak Road, the staffs from LAVTA and the City of Dublin have preliminarily determined that the most viable operation will be to turn the bus around counterclockwise using Panorama Drive, Carbondale Way, and Sunset View Drive (no bus stops would be established on those streets). Upon approval, Staff will work with the City and Operations to finalize the exact turnaround alignment.



Route 503. This service, anchored at the West Dublin/Pleasanton BART station, is geared toward bringing students from the Silvergate and Shannon Park areas to/from Dublin High School and Wells Middle School. Although technically a supplemental route that only operates on school days, the #503 is currently set up to also serve as a limited BART feeder option, by way of the route continuing east to/from Dougherty Road and the East Dublin/ Pleasanton station, as well as by providing an extra afternoon trip during the 5PM hour.

The commute elements of the route, however, carry negligible ridership as there is currently only one user in the morning and zero users in the afternoon. It is recommended that the #503 service east of WMS, including Wildwood Road and Dougherty Road, be discontinued per the adjacent map, along with the trip that currently departs East Dublin/Pleasanton BART at 5:03p. Service to/from the Wildwood Road and Dougherty Road areas to DHS would continue to be provided by the existing #502.



Overflow capacity. One of the tasks of the study was to extensively analyze current service capacity and passenger loads against the projected growth in student enrollment, in order to be able to proactively plan for capacity additions in accordance with the LAVTA overflow bus policy. The study recommends deployment of two additional buses in the PM to supplement capacity on routes #501 and #504, as well as some reassignment of capacity; the attached report contains details on current and anticipated capacity needs by route and service window (AM/PM).

The following table summarizes the preceding-page Phase I recommendations.

FALL 2018 RECOMMENDED SUPPLEMENTAL SERVICE MODIFICATIONS	
Route	Description of change
501	Partially re-assign overflow capacity to new (additional) expedited trips Discontinue "early-bird" morning trip Move "late-bird" afternoon trip from 4p to 5p
502	Extend route to Jordan Ranch
503	Discontinue segments east of WMS Discontinue late afternoon trip
504	Add overflow capacity
Sweeper	Discontinue and replace with additional, expedited trips as part of #501

Discussion: Phase II

The plan is also providing recommendations for service improvements that could be made in the medium-term. These items – for which Staff is *not* asking approval at this time - include:

- Further streamlining modifications to routes #501 and #504
- Potential modifications to mainline service such as routes #1 and #2 to better serve student - as well as commuter - transportation needs
- A new, dedicated supplemental route serving Fallon Middle School
- Extension of service to new subdivision off Palisades Drive

The medium-term plan also calls for LAVTA to procure and deploy articulated (60-foot) buses on routes 501, 502, and 504, in order to increase efficiency and reduce peak pull requirements. It also recommends the agency to advise and support member jurisdictions to approve development patterns that better enable public transit service, including school tripper service.

Staff will return to ask for approval of the Phase II elements separately at a future point.

Budget

The main resources needed to implement the plan relate to peak vehicle and manpower requirements, but in total, Phase I of the plan is designed to be *cost neutral* in terms of vehicle hours. For the medium-term plan, however, other types of offsets or service trade-offs would be required. For both, additional fare revenues are expected to help underwrite incremental service.

Recommendation

It is recommended that the Board of Directors approve the *Phase I* recommendations as outlined above, with a target implementation date of August 13, 2018.

Attachments:

1. Dublin Student Transit Service Study (DRAFT) by Nelson\Nygaard & Assoc.

Approved: _____



Photo source: LAVTA

LAVTA Dublin Transit Plan

DRAFT

May 2018

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1 INTRODUCTION

Since the publication of LAVTA's Short Range Transit Plan in 2016, the number of students riding school trippers in Dublin has increased by more than 50%, causing LAVTA to deploy additional resources to meet the needs of the community.

The goals of the Dublin Transit Service Plan are as follows:

- Determine what resources are needed to meet demand for the 2018-2019 school year
- Prepare LAVTA's services to meet future demand in Dublin

This plan is the culmination of technical analysis and work with the community, Wheels staff and Board of Directors, and Dublin Unified School District representatives.

This report will provide the basis for the schedules and routes that will be operated in the fall 2018. It will also serve as the starting point for a discussion about the types of vehicles used in service and funding needs to serve a fast-growing service area.

2 EXISTING CONDITIONS

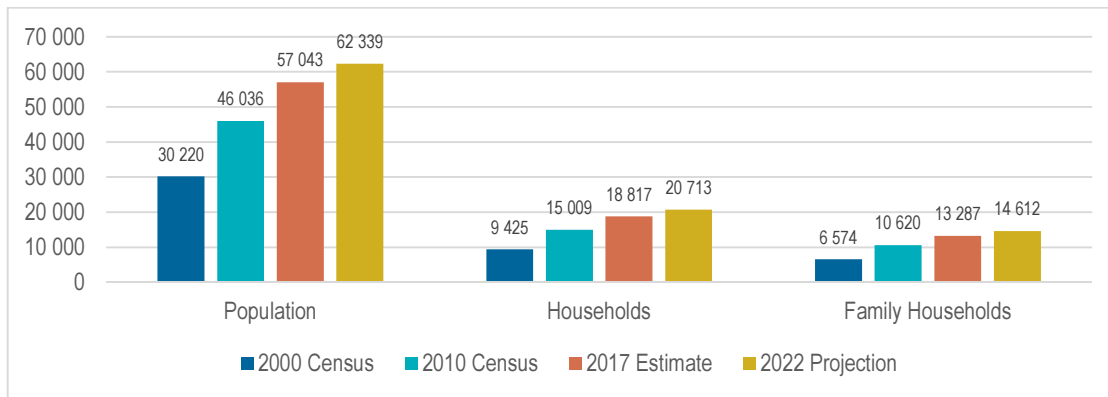
This chapter outlines general service characteristics of LAVTA’s bus routes that provide transportation to Dublin schools, as well as trends in ridership, operating, and performance metrics. The routes analyzed in this report include:

- Route 1 – East Dublin
- Route 2 – Dublin Ranch
- Route 30R – Intermunicipal
- Route 501 – Positano Hill
- Route 502 – Emerald Glen
- Route 503 – Shannon Park
- Route 504 – Dublin Ranch
- Route 505 – Positano Hill

POPULATION GROWTH

According to the City of Dublin, the city’s population is expected to grow by 9% between 2017 and 2022, as shown in Figure 1 and Figure 2. Likewise, the growth of family households with children, a key demographic of concern for school transportation, is expected to exceed the city’s rate and grow by about 10% by 2022. These growth rates indicate a likely increase in both overall transit demand and school transportation, in particular.

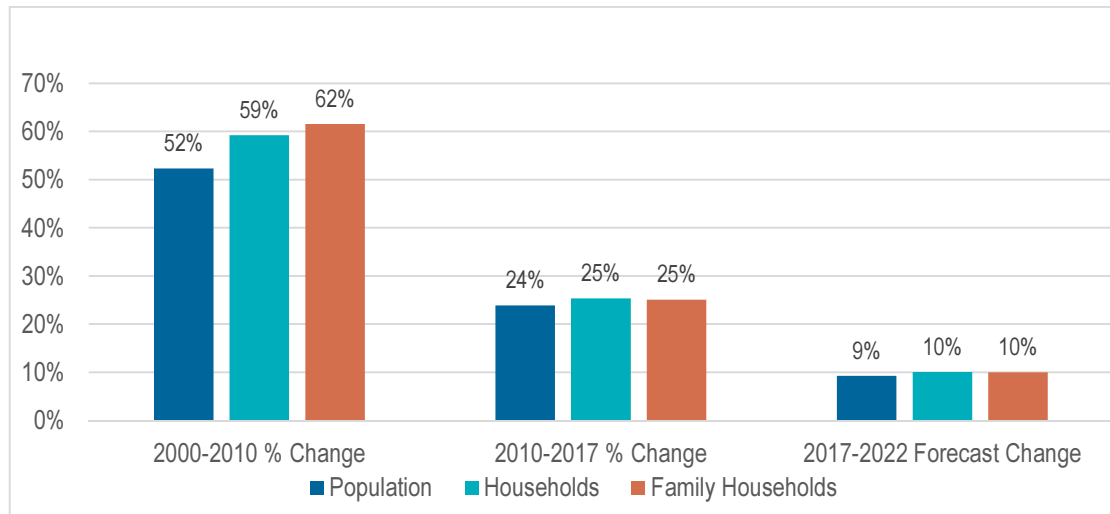
Figure 1 Dublin Population Growth Projections, 2000 – 2022



Source: City of Dublin¹

¹ <http://www.dublin.ca.gov/DocumentCenter/View/1763>

Figure 2 Dublin Percent Population Growth Projections, 2000-2022



Source: City of Dublin²

Enrollment forecasts from the Dublin Unified School District, prepared in late 2016, provide an even clearer picture of the projected increase in demand for school transportation in Dublin. According to these forecasts, an overall increase of 50% in the student population is expected between 2017 and 2024. The forecast enrollment growth is not expected to occur evenly across the city of Dublin; specific communities within Dublin are expected to see enrollment grow by significantly more than 50% between 2017 and 2024, while others will see more modest growth or even declines in student enrollment (see Figure 5 and Figure 6). The highest-growth clusters of student enrollment, as measured by percent growth, include:

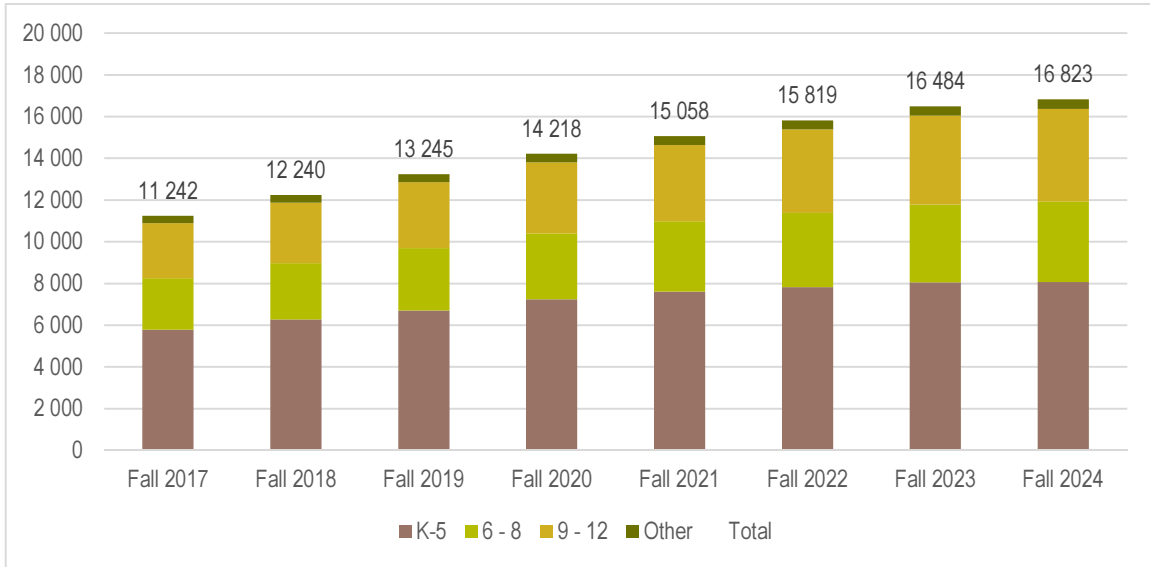
- Transit-oriented developments anchored at West Dublin/Pleasanton BART, between I-580 and Dublin Boulevard
- Camp Parks military base
- Transit-oriented developments anchored at East Dublin/Pleasanton BART, between I-580, Dougherty Road, Arnold Road, and Dublin Boulevard
- Wallis Ranch planned community, near Tassajara Road & Fallon Road
- Jordan Ranch/Kingswood planned communities, near Central Parkway & Panorama Drive
- Lennar planned communities – Tramore at Irongate and Wexford at Irongate – near Central Parkway & Fallon Road

Based on these demographic forecasts, additional school service may be particularly warranted along the Fallon Road corridor in eastern Dublin, Central Parkway corridor in central Dublin, and Dublin Boulevard corridor in West Dublin.

² <http://www.dublin.ca.gov/DocumentCenter/View/1763>

Figure 3 Dublin Student Enrollment Projections, 2017 – 2024

Grades	Actual Fall 2017	Fall 2018	Fall 2019	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024	Percent Growth, 2017
K-5	5,790	6,272	6,702	7,237	7,603	7,819	8,053	8,078	40%
6 - 8	2,468	2,697	2,996	3,157	3,385	3,561	3,734	3,860	56%
9 - 12	2,629	2,899	3,158	3,418	3,650	4,006	4,252	4,434	69%
Other ³	355	372	389	406	420	433	445	451	27%
Total	11,242	12,241	13,245	14,218	15,057	15,819	16,484	16,822	50%

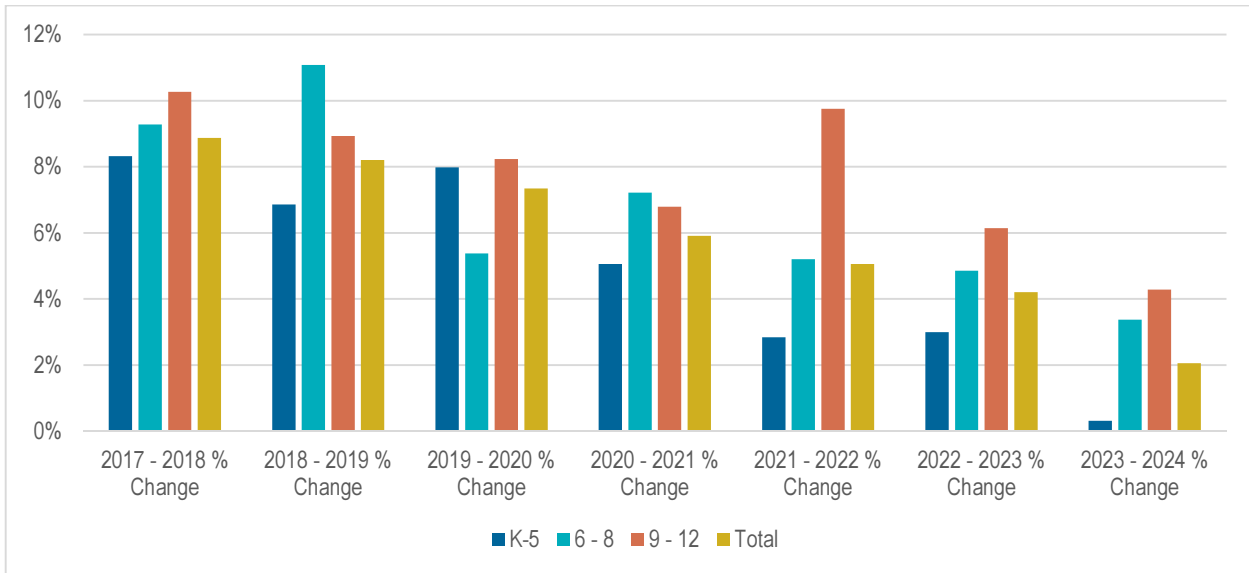


Source: Dublin Unified School District⁴

³ Includes Special Education, out-of-district transfers, and unmatched students

⁴ Dublin Unified School District. 2017. 7-Year Student Population Projections by Residence, 2017-2023, p. 22. Retrieved from <https://www.dublin.k12.ca.us/cms/lib/CA01001424/Centricity/Domain/5/DublinFinalReportFall1617.pdf>

Figure 4 Dublin Student Enrollment Percent Growth Projections, 2017 – 2024

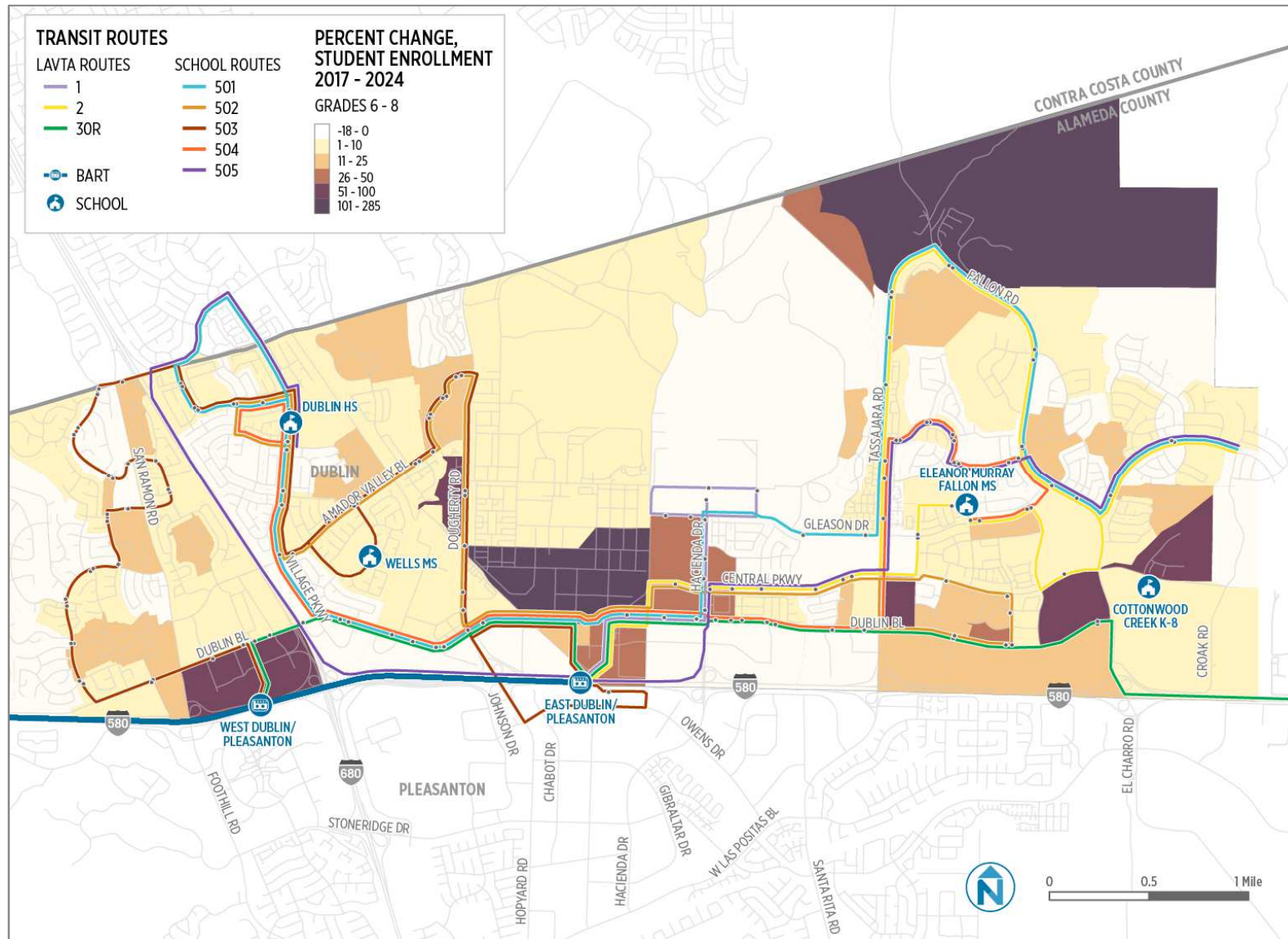


Source: Dublin Unified School District⁵

⁵ Dublin Unified School District. 2017. 7-Year Student Population Projections by Residence, 2017-2023, p. 22. Retrieved from <https://www.dublin.k12.ca.us/cms/lib/CA01001424/Centricity/Domain/5/DublinFinalReportFall1617.pdf>

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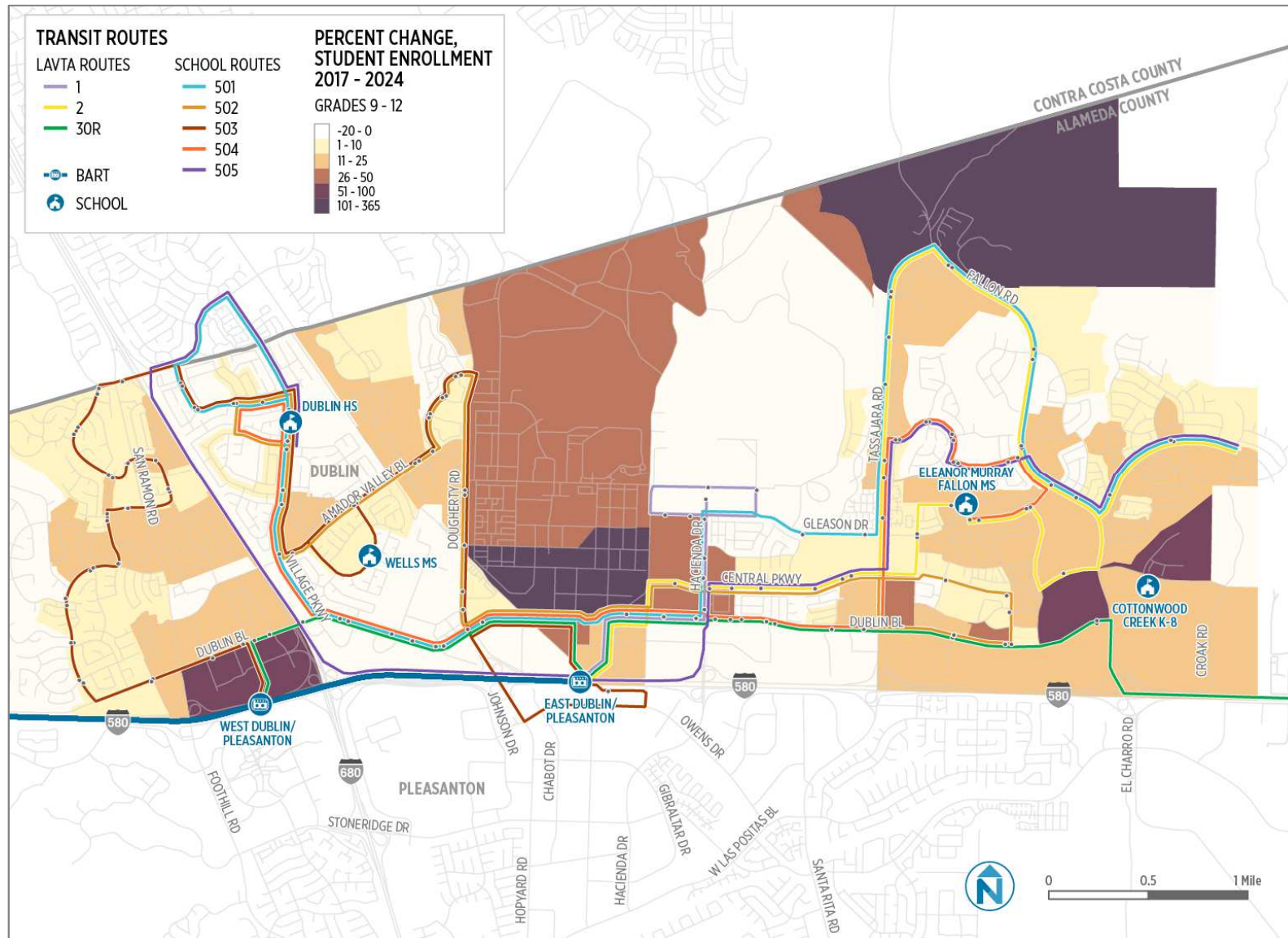
Figure 5 Dublin USD Enrollment Change (2017 – 2024), Grades 6-8



Sources: LAVTA, Dublin Unified School District

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Figure 6 Dublin USD Enrollment Change (2017 – 2024), Grades 9 - 12



Sources: LAVTA, Dublin Unified School District

TRANSIT SERVICE CONSIDERATIONS

LAVTA currently operates 47 vehicles during its peak service hours throughout Dublin, Livermore, and Pleasanton. Changes to service in Dublin impacts the entire network. Without additional revenue or funding, increases in the number of vehicles needed to provide school transportation comes at a cost to service on other main-line routes that serve the general public throughout the day. Providing public transportation to schools is a nationwide challenge because it requires significant resources (vehicles and operators) during peak travel times, but usually only for a short period of time. Federal regulations also have specific rules to follow to ensure the routes are open to the general public and that riders are charged normal fares. Ultimately, serving schools is also a different service model than regular fixed-route service, in that there is one main destination with many home origins, which is trying to be provided in as few trips as possible, whereas main line service aims to connect people to multiple origins and locations as often as possible for as much of the day as makes sense. Both cohorts of riders are valuable to the transit agency. It takes considerable outreach, education, and analysis to ensure the right balance of service to meet the population's needs and serve the transit agency can operate sustainably.

TRANSIT SERVICE IN DUBLIN

The eight LAVTA routes analyzed in this report, shown in

Figure 7, provide extensive geographic coverage of most populated areas of Dublin with varying levels of ridership and service productivity. Routes 1 is a local bus route with limited frequencies and spans of service. Route 30R, on the other hand, is LAVTA's most frequent and highest-ridership service, complete with "Rapid" branding and on-board amenities such as free Wi-Fi and newer, high-end vehicles. While neither Route 1 nor 30R are designed to specifically accommodate student bell times, these routes may have the potential to provide student transportation if their schedules are effectively synchronized with school bell pickup and drop-off times. Route 2 is a hybrid route serving both a mainline fixed route transit purpose and also as a school tripper with bell time coordination at Fallon Middle School.

There are four dedicated LAVTA school routes, the 500-series, operate a limited number of daily trips and typically offer service only in a single direction at any given time: inbound from residential neighborhoods to the school, and outbound from the school to residential neighborhoods. They operate only during the school year, instead of all year like Routes 1, 2 and 30R. Despite limited operating schedules, they are some of the most productive routes in the LAVTA system, measured in terms of riders per revenue service hour (Figure 8 and Figure 9

Figure 8).

At the same time, the school routes suffer from significant on-time performance issues compared to the local/rapid routes, achieving average on-time performances of well under LAVTA's goal of 85% (Figure 10).

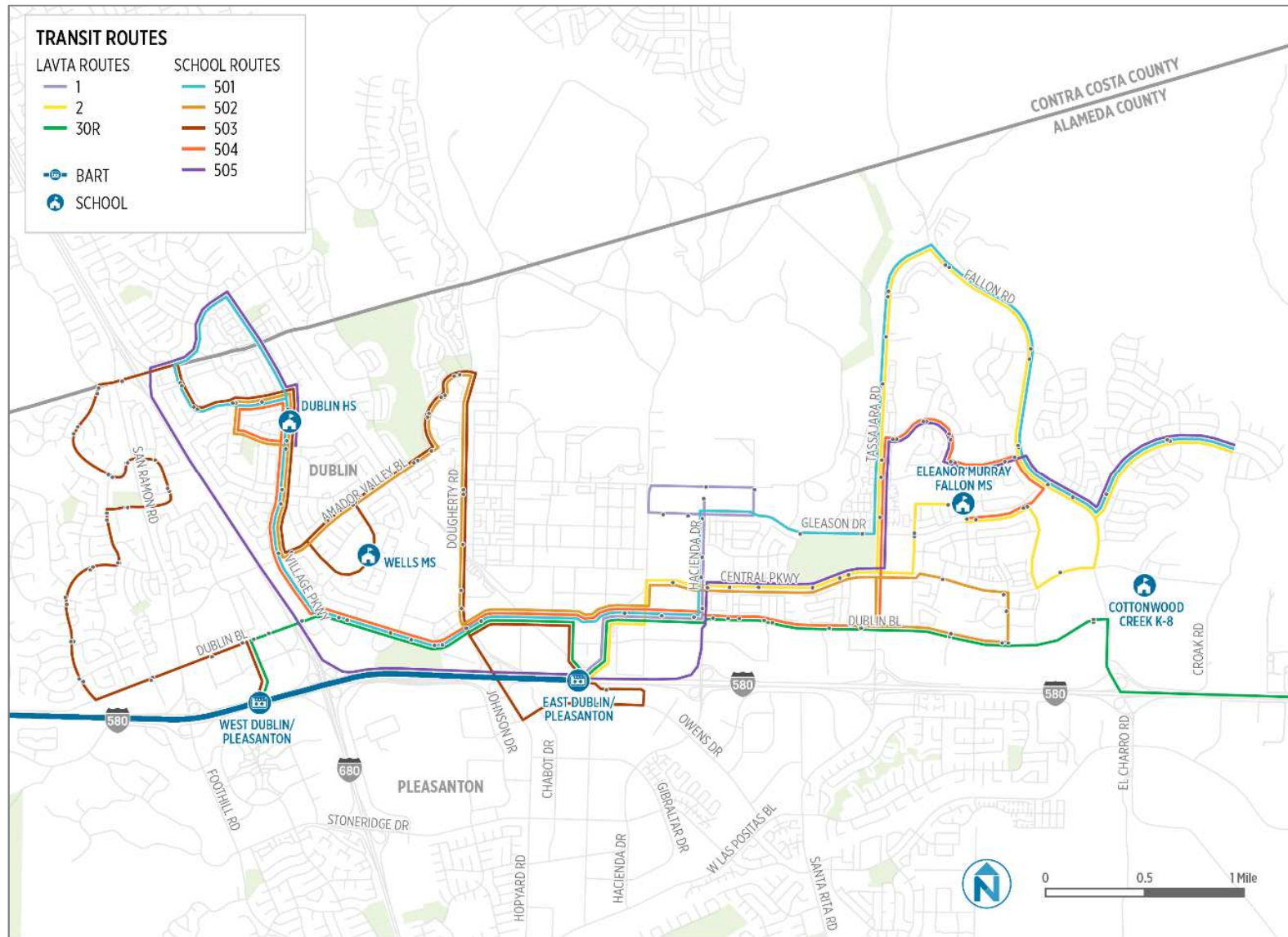
Bike and pedestrian access to school transit stops in Dublin is mixed, as shown in Figure 11. Both Fallon Middle School and Cottonwood Creek School are located adjacent to on-street bikeways or off-street trails. Wells Middle School and Dublin High School are accessible by the Iron Horse Regional Trail and Alamo Canal Trail, respectively. Additionally, recently completed on-street bikeways along Village Parkway may improve access to Dublin High School.

Analysis of Dublin's pedestrian access with respect to LAVTA bus stops reveals that most of the city can easily access nearby bus stops within walking distance (Figure 12). Numerous studies have established that most people are willing to walk $\frac{1}{4}$ mile to access local bus service and up to $\frac{1}{2}$ mile for high-frequency bus service.⁶ By this standard, significant portions of West Dublin/Shannon Park and Dublin Ranch/Positano Hill are between $\frac{1}{4}$ and $\frac{1}{2}$ mile walking distance from their nearest bus stop. This degree of proximity is likely within most people's tolerance for high-frequency transit, but just outside the tolerance threshold for local or infrequent transit service. In addition, significant residential developments under construction at Wallis Ranch and Lennar/Tramore at Irongate remain outside of the $\frac{1}{2}$ mile walking distance threshold under current transit network conditions.

⁶ Iacono, Michael, Kevin Krizek, and Ahmed M. El-Geneidy. 2008. "Access to Destinations: How Close Is Close Enough? Estimating Accurate Distance Decay Functions for Multiple Modes and Different Purposes." Report. Minnesota Department of Transportation. <http://conservancy.umn.edu/handle/11299/151329>.

LAVTA

Figure 7 Wheels Transit Routes Serving Dublin



Source: LAVTA

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LAVTA

Figure 8 **LAVTA Weekday Annual Weekday Ridership Characteristics, Dublin, FY 2017**

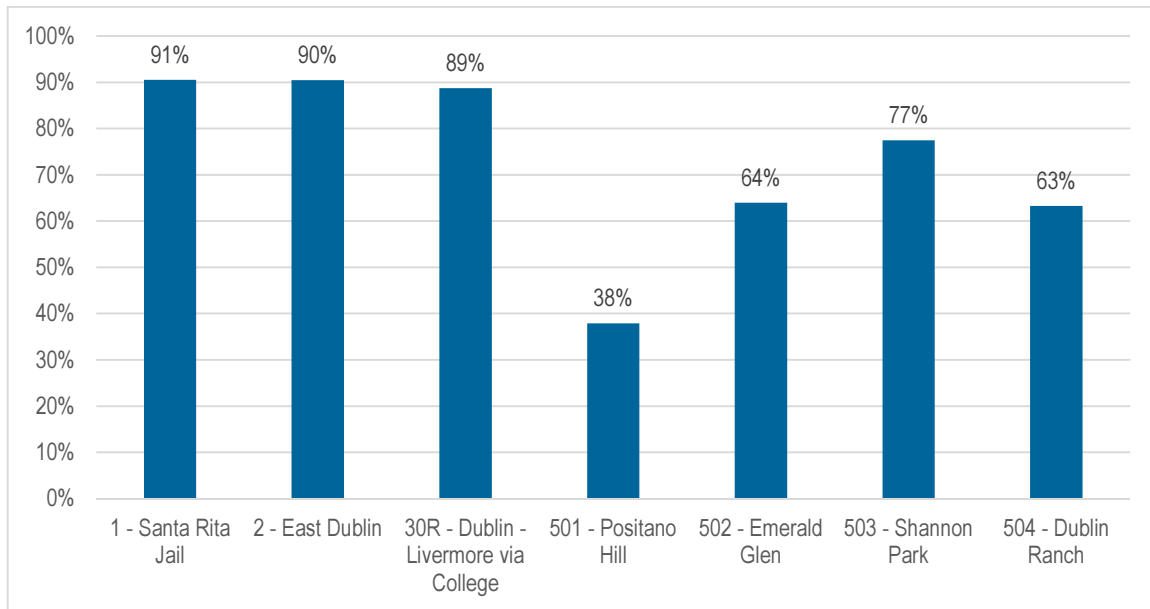
Route	Route	Annual Ridership	Average Weekday Ridership	Average Trips per Day
1	Santa Rita Jail	16,856	51	22 (loops)
2	East Dublin	8,252	33	8
30R	Dublin-Livermore via Positas College	461,036	1,676	120
501	Positano Hill	32,047	150	6
502	Emerald Glen	12,368	63	3
503	Shannon Park	7,021	37	4
504	Dublin Ranch	19,413	108	3
505	Positano Hill	4,017	21	1

Source: LAVTA

Figure 9 **LAVTA Service Characteristics**

Route	Route	Annual Ridership	Annual Weekday Revenue Hours	Annual Weekday Revenue Miles	Weekday Riders per Hour
1	Santa Rita Jail	16,856	1,849	25,990	7
2	East Dublin	8,252	1,347	16,085	6
30R	Dublin-Livermore via Positas College	461,036	33,405	447,520	13
501	Positano Hill	32,047	333	5,401	96
502	Emerald Glen	12,368	197	2,840	63
503	Shannon Park	7,021	488	5,834	14
504	Dublin Ranch	19,413	183	2,433	106
505	Positano Hill	4,017	223	3,642	18

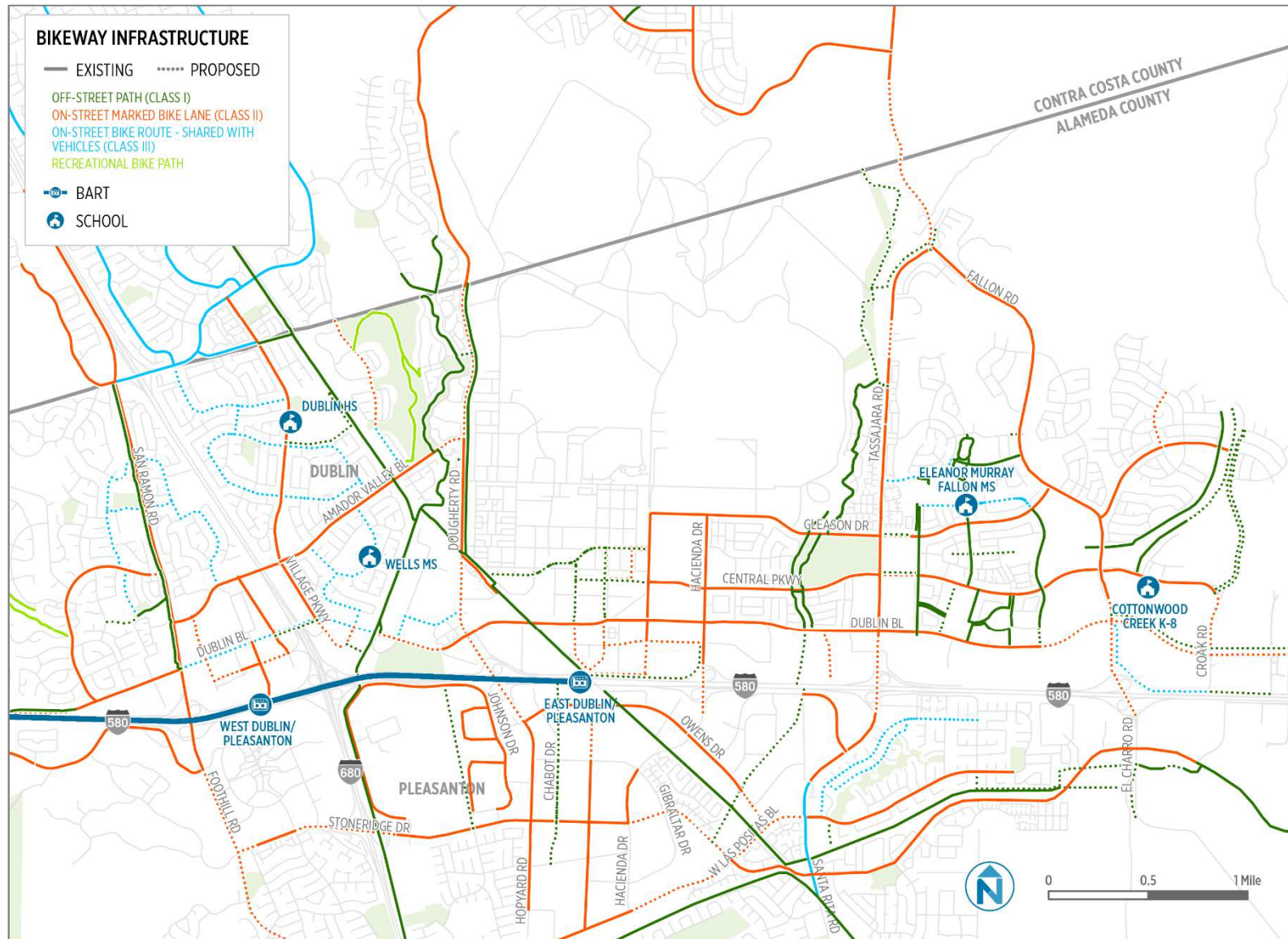
Figure 10 **LAVTA Dublin School Routes On-time Performance**



Source: LAVTA

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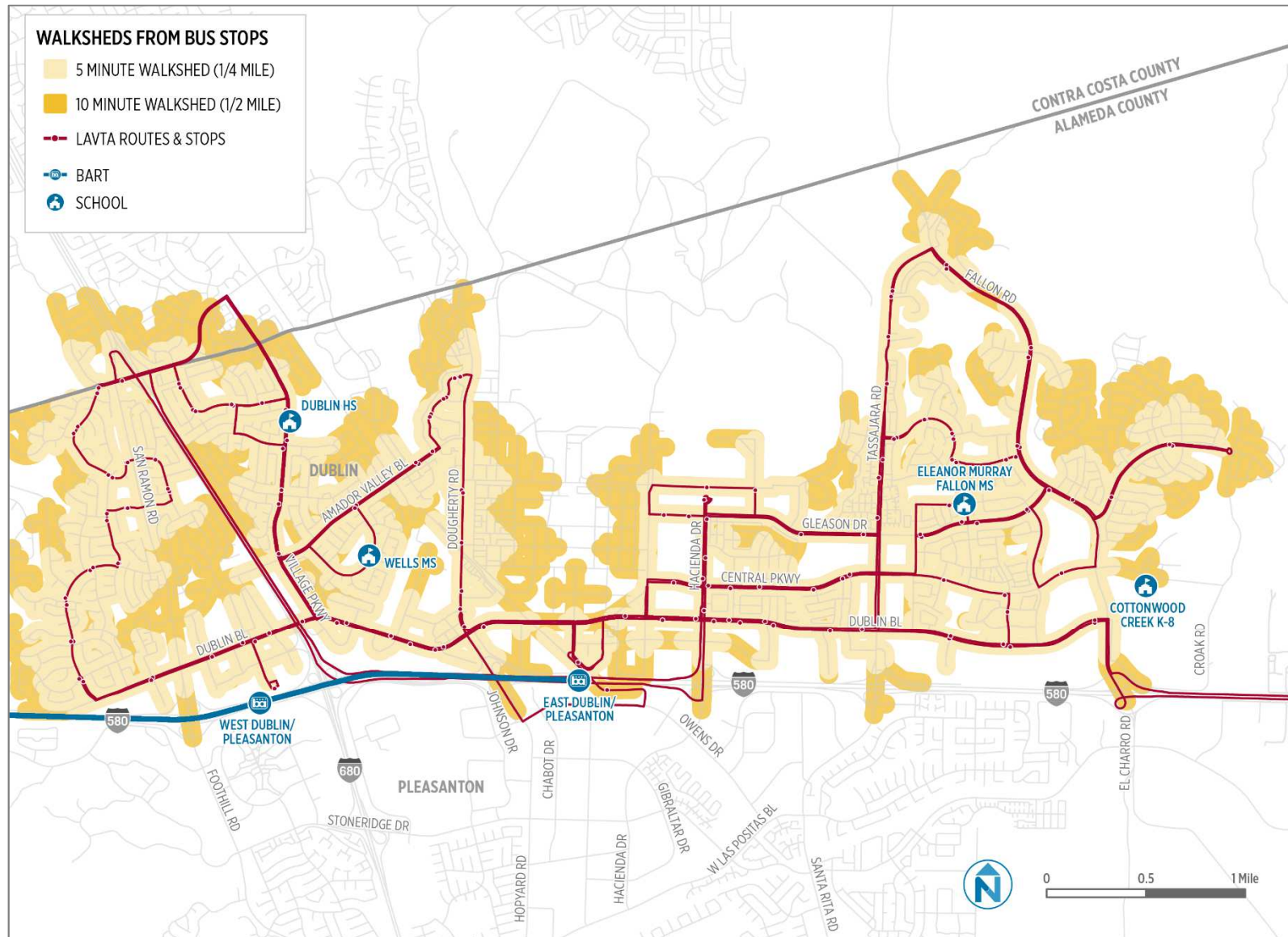
Figure 11 Dublin Bikeway Infrastructure



Sources: Alameda County GIS, Google Maps

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Figure 12 Pedestrian Access from Bus Stops



Source: LAVTA, Nelson\Nygaard

ROUTE OVERVIEWS

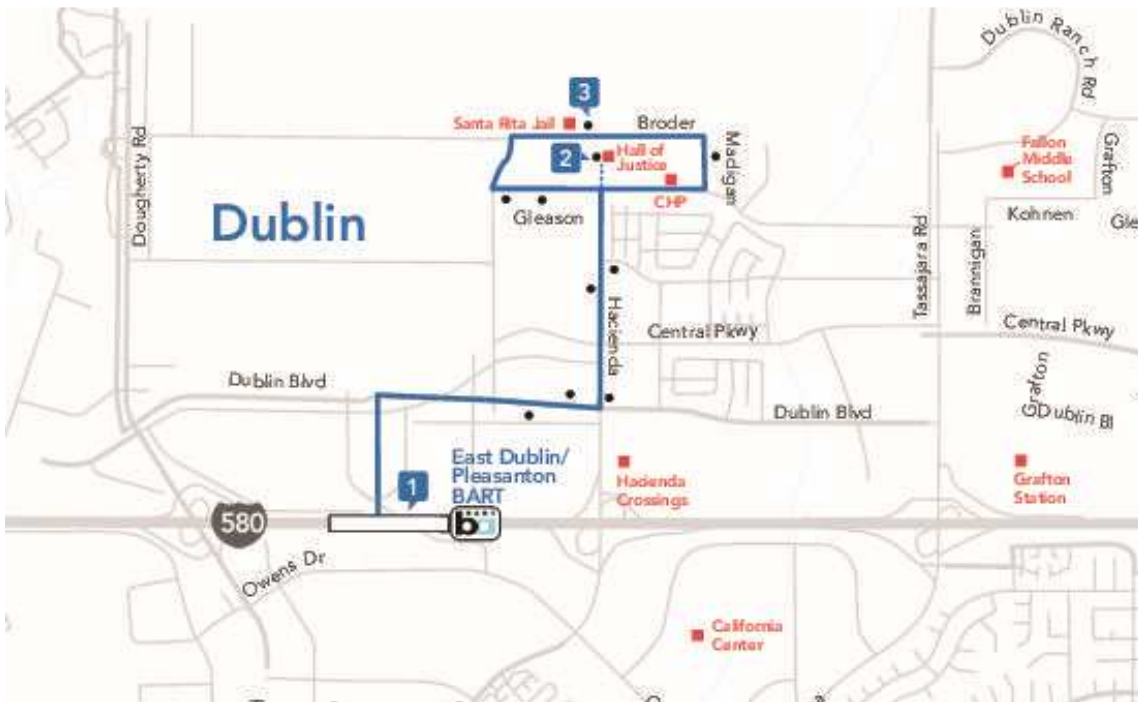
This section provides an overview of ridership, operating parameters, and productivity metrics for each of the eight routes serving Dublin.

Route 1 – Santa Rita Jail

Overview

Route 1 is a local connector bus route that operates in a loop pattern between three primary nodes: East Dublin/Pleasanton BART station, East County Hall of Justice, and the Santa Rita Jail (Figure 13). Route 1 operates at a 30-minute frequency on weekdays and every 60 minutes on weekends. Route 1's span of service is roughly 6 AM to 9 PM, Monday thru Friday, and 7:30 AM to 9 PM Saturdays and Sundays. Route 1 operates in a loop that begins and ends at East Dublin/Pleasanton BART station. The route's scheduled running time is 19 minutes to complete this loop during PM peaks, 17 minutes during all other times on Monday – Friday, and about 14 minutes on Saturdays and Sundays.

Figure 13 Route 1 Map



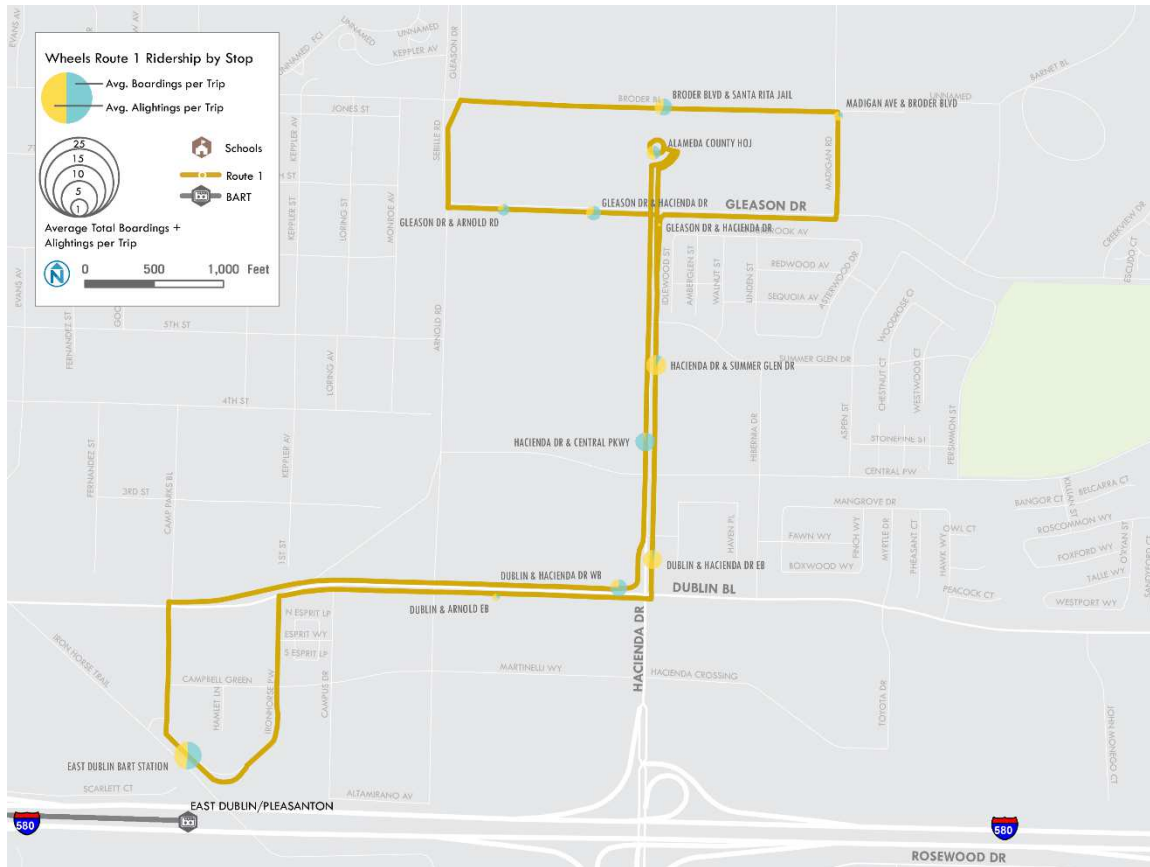
Source: LAVTA

Ridership

Route 1 does not provide proximate service to any of Dublin's middle or high schools, and its service operates at roughly even frequencies throughout the day without orientation to school bell times. As a result, Route 1 serves fewer riders per trip compared to several of LAVTA's dedicated school routes. Overall, Route 1 serves fewer than five total boardings and alightings per trip at each of its stops, as shown in Figure 14. However, trips during peak commute hours carry the bulk of the daily ridership, with very little activity in the midday. Route 1 serves about 17,000 riders annually (Figure 15), ranking 13th out of LAVTA's 35 routes. On a typical weekday, Route 1 serves 51 total riders and about 7 riders per service hour.

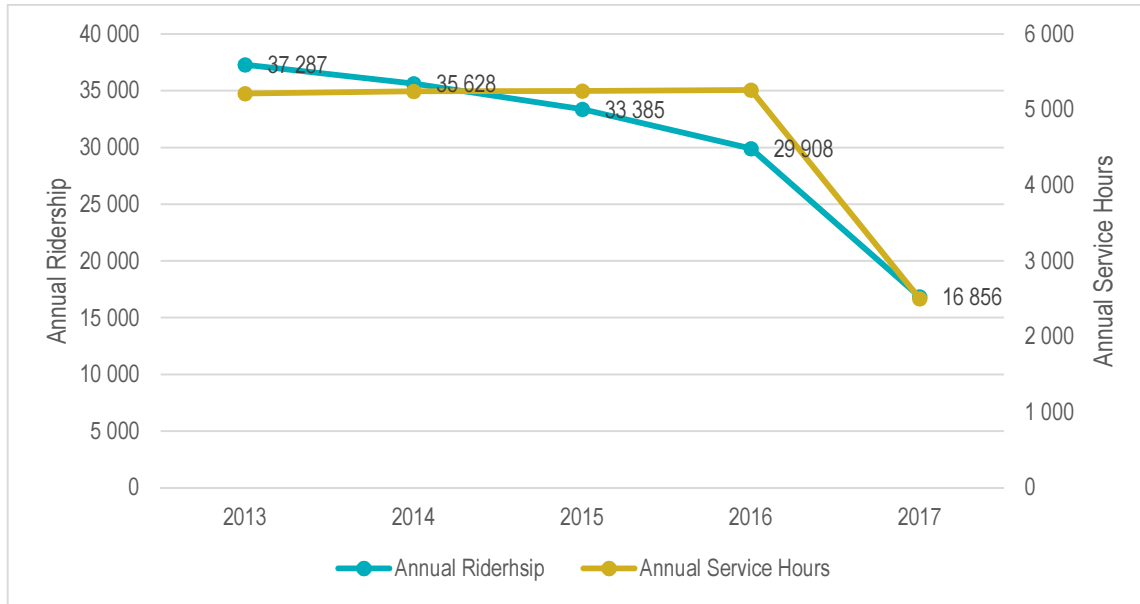
Ridership activity is distributed fairly evenly along the route, with the East Dublin/Pleasanton BART station attracting the highest demand with about four total boardings and alightings per trip. Route 1's annual ridership has declined by more than 50% since 2013, roughly proportional to the decline in the route's service hours (Figure 15). Annual service hours on Route 1 declined from about 5,200 in the years 2013-2016 to about 2,500 in 2017. Service productivity, as measured by the number of weekday riders per hour, has remained stable throughout the 2013-2017 period, at about seven weekday riders per hour.

Figure 14 Route 1 Ridership by Stop



Source: LAVTA, Alameda County GIS

Figure 15 Route 1 Ridership vs. Service Hours, 2013 - 2017

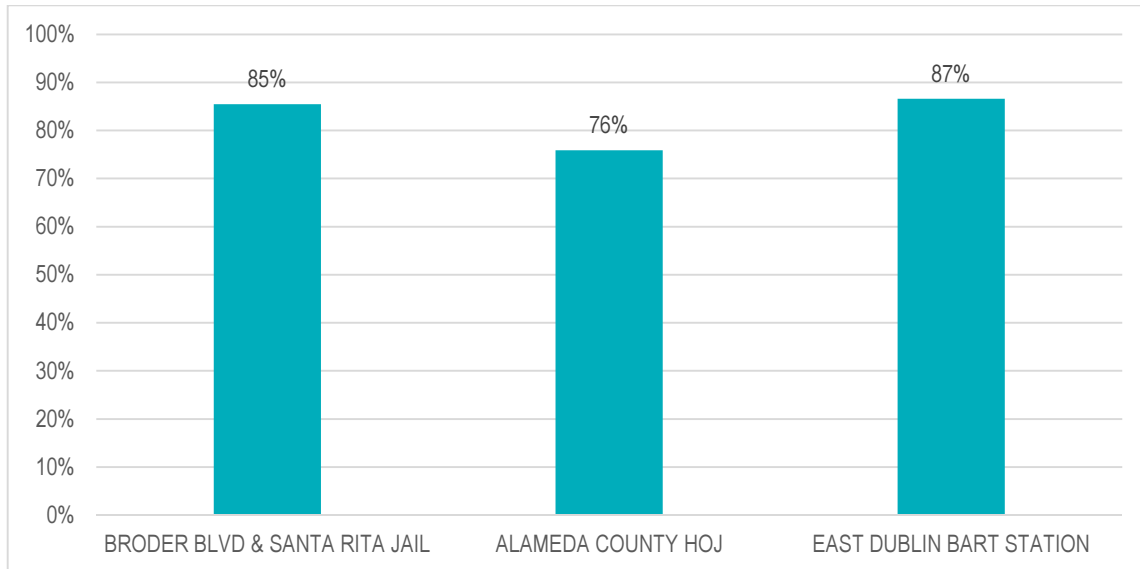


Source: LAVTA

On-Time Performance

Route 1 has an overall on-time performance of 91%. However, on-time performance at Route 1's three primary stops – East Dublin/Pleasanton BART, Alameda County Hall of Justice, and Santa Rita Jail – was slightly lower, between 76% and 87% (Figure 16).

Figure 16 Route 1 On-Time Performance



Source: LAVTA

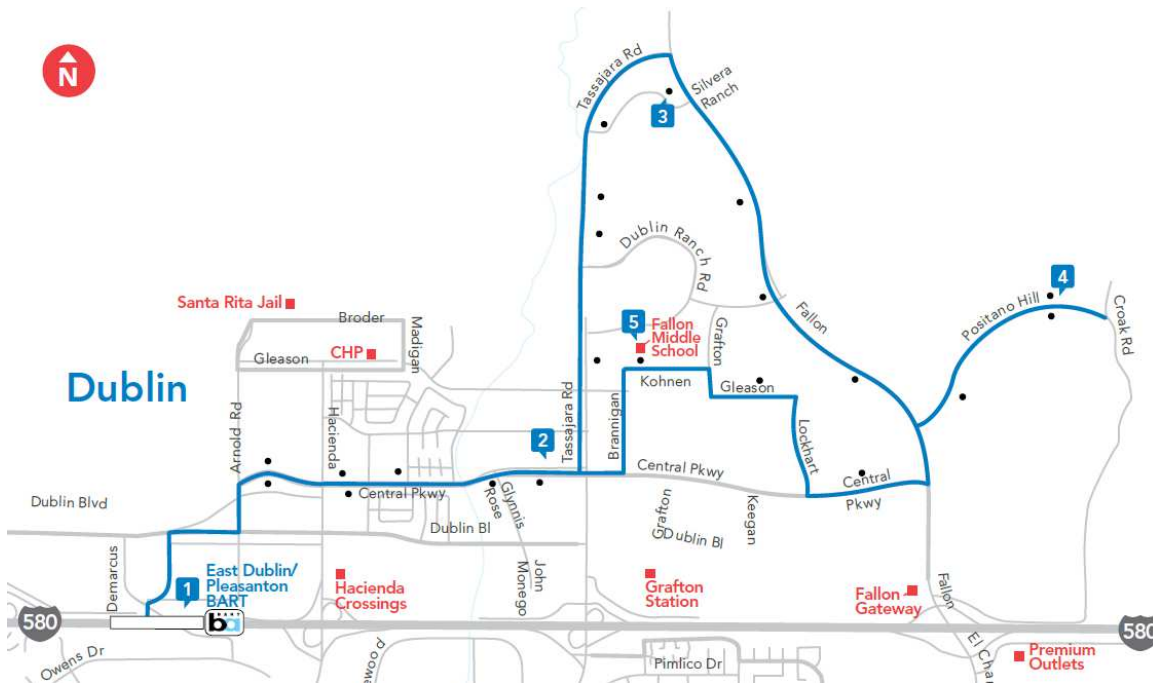
Route 2 – East Dublin

Overview

Route 2 operates in a loop between East Dublin/Pleasanton BART and Dublin's easternmost residential development (Positano Parkway & Valentano Drive). Route 2 operates with an asymmetric pattern for part of its alignment, and as a result serves Fallon Middle School in the westbound direction only; in the eastbound, Route 2 does not serve Fallon Middle School and instead travels along Tassajara Road, Fallon Road, and Positano Parkway before resuming its primary service branch along Central Parkway and its ultimate destination of East Dublin/Pleasanton BART (Figure 17). Fallon Middle students who use Route 2 typically either have a longer trip on the way to school or on the way home from school, depending upon where they reside on the loop route.

Route 2 operates at hourly service frequencies during peak periods with seven daily trips, three in the AM peak and four in the PM peak. No weekend service is available on Route 2. Route 2's span of service is roughly 6:30 AM to 8:30 AM during the AM peak and 3:30 PM to 6:30 PM during the PM peak. The route's scheduled running time to complete its loop, starting and ending at East Dublin/Pleasanton BART, is 46 minutes.

Figure 17 Route 2 Map



Source: LAVTA

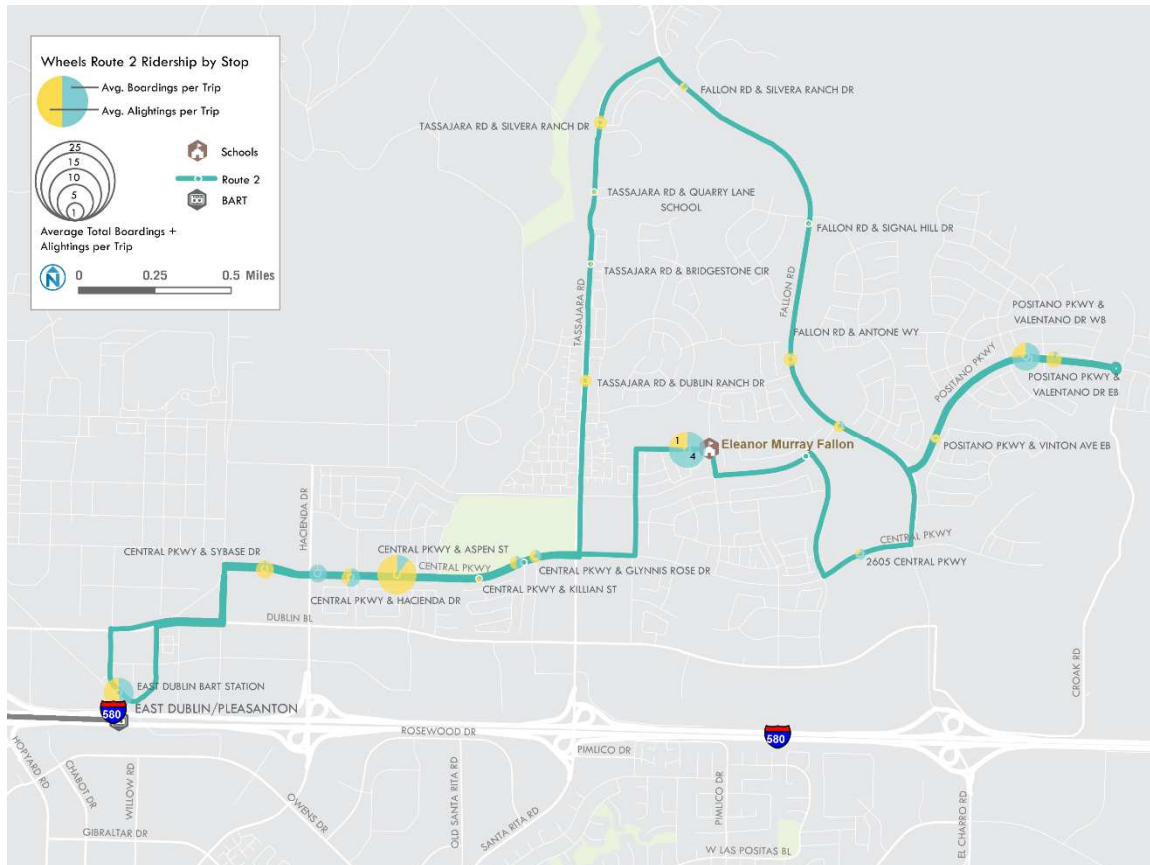
Ridership

Route 2 serves about 8,000 riders annually (Figure 19), ranking 24th out of LAVTA's 35 routes. On a typical weekday, Route 1 serves 33 total riders and about 6 riders per service hour. Ridership activity is very low across most of Route 2's alignment, with the exception of three key nodes, each of which average about five total boardings and alightings per trip. These key nodes include the East Dublin/Pleasanton BART station, Fallon Middle School, and Central Parkway & Aspen Street. Despite little change in service hours, Route 2's annual ridership has fluctuated significantly since 2013, with a near-doubling of the route's ridership between 2015 and 2016, though 2017 ridership has declined to levels comparable to those of the period 2013-2015 (Figure 19). Service productivity, as measured by the number of weekday riders per hour, has averaged about 5-6 weekday riders per hour, with the exception of the high-ridership year of 2016, when Route 2 averaged 10 riders per hour.

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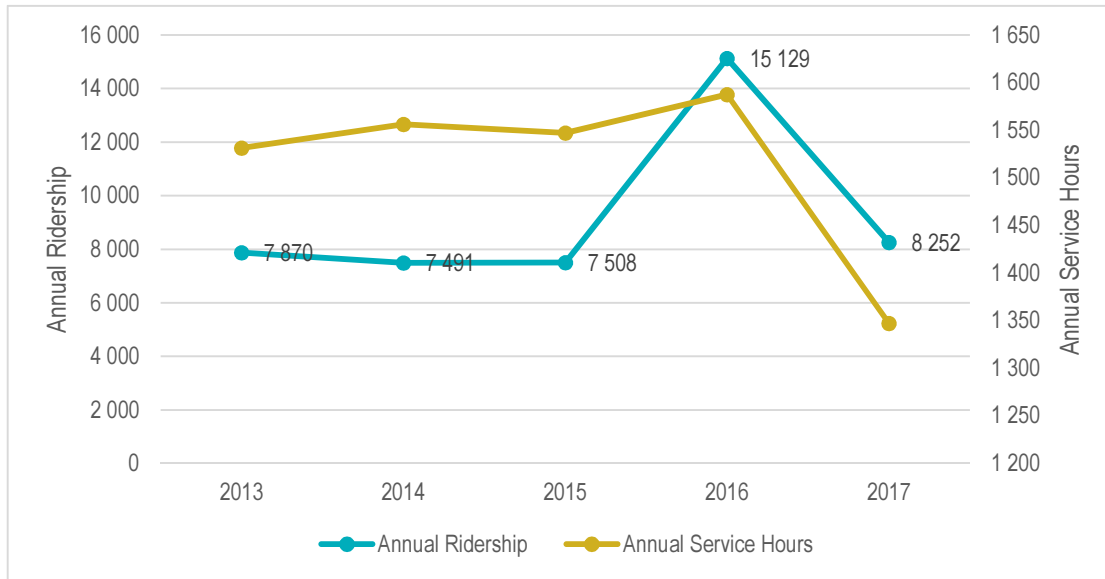
Route 2 ridership is bolstered by students who ride to and from Fallon Middle School on one morning and one afternoon trip. Because Route 2 is a one way loop between Tassajara Road and Fallon Road, students who live along Central Parkway must travel up Tassajara Road, through Positano Parkway, and loop around before arriving at school in the morning. However in the evening, they are the first to get dropped off, and students who live near Positano Parkway must travel westbound to the East Dublin/Pleasanton BART Station, before heading back east, then north through Tassajara and Fallon roads.

Figure 18 **Route 2 Ridership by Stop**



Source: LAVTA, Alameda County GIS

Figure 19 Route 2 Ridership vs. Service Hours, 2013-2017

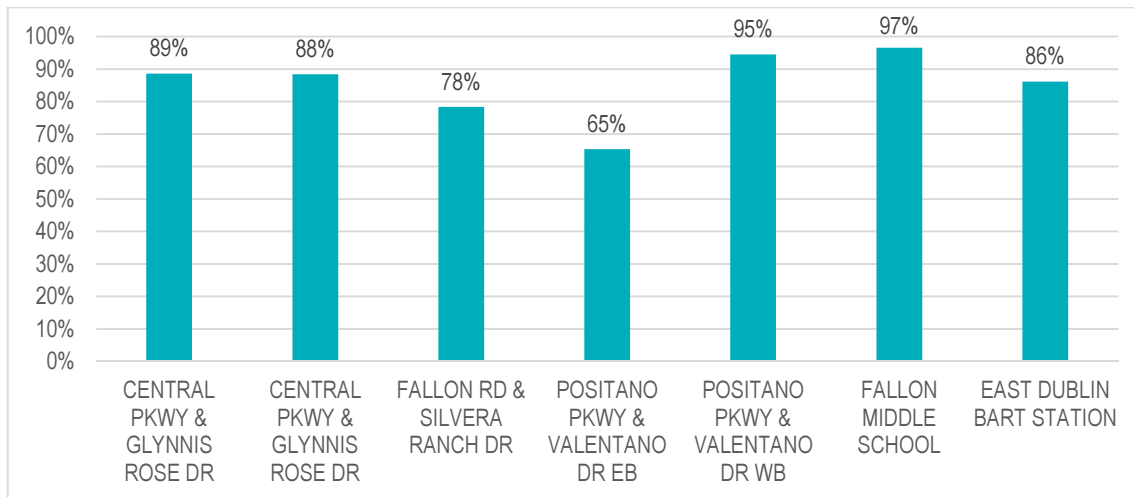


Source: LAVTA

On-Time Performance

Route 2 has an overall on-time performance of 90%. Most of Route 2's alignment operates at an on-time performance of greater than 85%. However, on-time performance on the route segment between Central Parkway & Glynnis Rose Drive and its loop's endpoint at Positano Parkway & Valentano Drive suffers from relatively poor on-time performance, which declines to 65% by the latter location (Figure 20). This is likely due to inefficient turning patterns in the approach to Fallon Middle School, in the inbound direction, and along Fallon and Tassajara Roads in the outbound direction.

Figure 20 Route 2 On-Time Performance



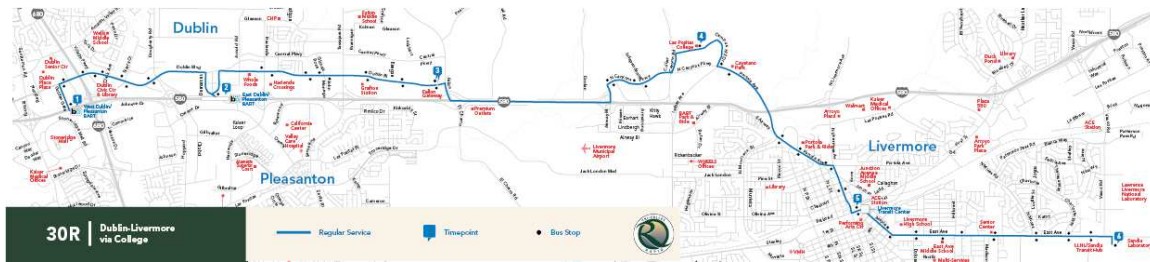
Source: LAVTA

Route 30R – Dublin/Livermore via Positas College

Overview

Route 30R (“Rapid”) is an all-day, rapid bus service that operates between West Dublin/Pleasanton BART and eastern Livermore, at East Avenue & Vasco Road. Route 30R does not directly serve any of Dublin’s schools, but instead operates as a high-frequency connection between Livermore Transit Center, Las Positas College, and both of Dublin’s BART stations (Figure 21). Route 30R operates at 15-minute service frequencies all day long on weekdays, at 30-minute frequencies during evenings between 7 PM and 10 PM, and hourly frequencies on weekends and on weekdays after 10 PM. Route 30R’s span of service is roughly 5 AM to 12 AM on weekdays and weekends. The route’s scheduled running time is between 57 and 62 minutes.

Figure 21 Route 30R Map

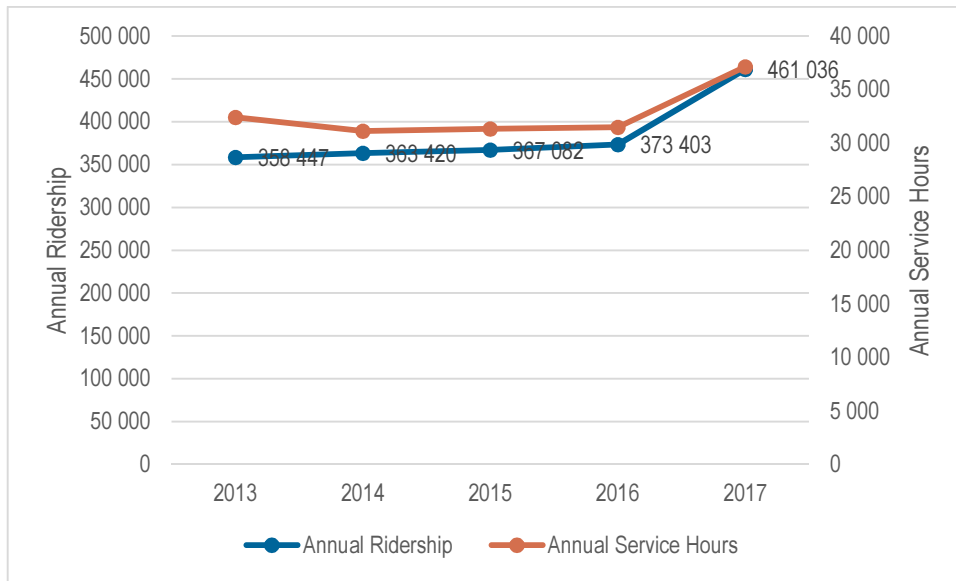


Source: LAVTA

Ridership

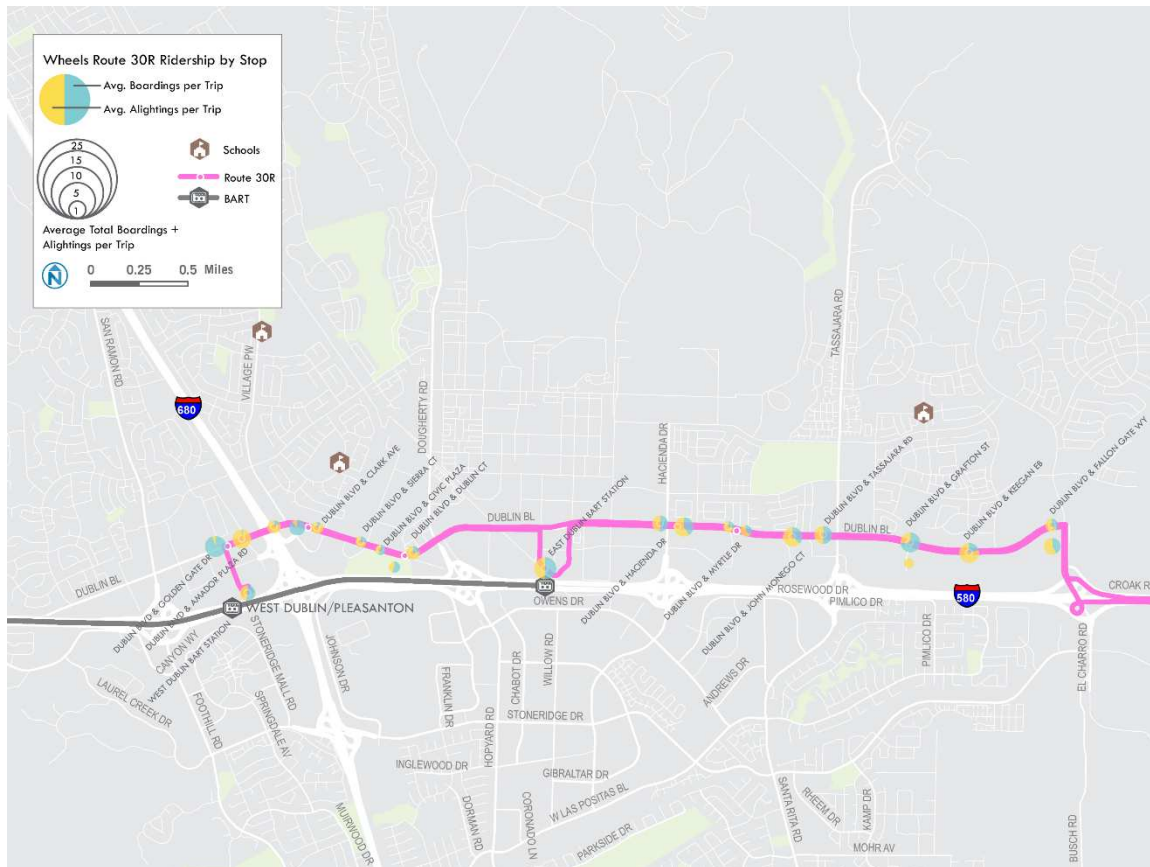
Route 30R serves about 461,000 riders annually (Figure 22), making it LAVTA’s most popular route. On a typical weekday, Route 30R serves 1,676 total riders and about 13 riders per service hour. Despite having the highest annual ridership of any LAVTA route, Route 30R has relatively low ridership on a per-trip basis, with most of its Dublin stops serving 1-3 riders per trip. This ridership is fairly evenly distributed, and the West and East Dublin/Pleasanton BART stations do not generate above-average ridership activity. In 2016, the 30 underwent a rebranding to a high frequency “rapid” route and was designated Route 30R. Ridership increased nearly 25 percent between 2016 and 2017 (Figure 22). In addition to higher-frequency service, the 30R has since operated with better passenger amenities than other LAVTA routes, including newer, hybrid buses with premium seating and free onboard Wi-Fi. Service productivity, as measured by the number of weekday riders per hour, has improved from about 11 weekday riders per hour in 2013 to 13 weekday riders per hour in 2017.

Figure 22 Route 30R Annual Ridership vs. Service Hours, 2013 – 2017



Source: LAVTA

Figure 23 Route 30R Ridership by Stop

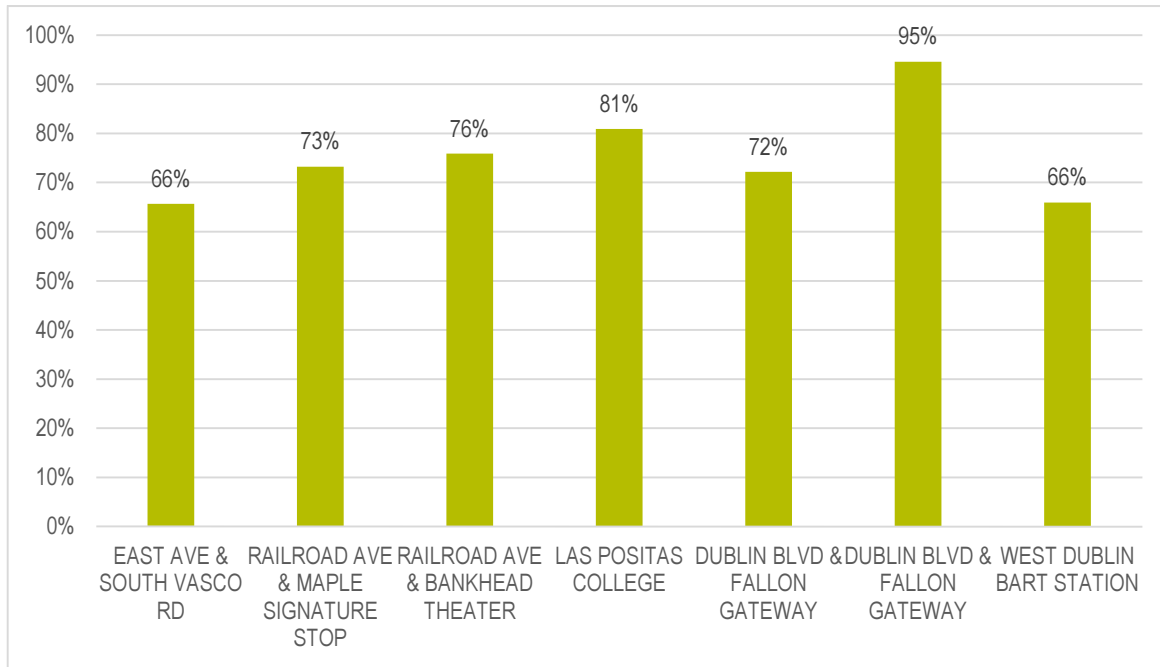


Source: LAVTA, Alameda County GIS

On-Time Performance

Route 30R has an overall on-time performance of 89%. However, on-time performance on several portions of Route 30R's alignment falls below 85%. In particular, on-time performance declines significantly from 95% at Dublin Boulevard & Fallon Gateway to 66% at the West Dublin/Pleasanton BART station and East Avenue and South Vasco Road (see Figure 24). On-time percentages also fall below 85% for the portion of Route 30R operating in Livermore, between East Avenue & South Vasco Road and Dublin Boulevard & Fallon Gateway.

Figure 24 Route 30R On-time Performance



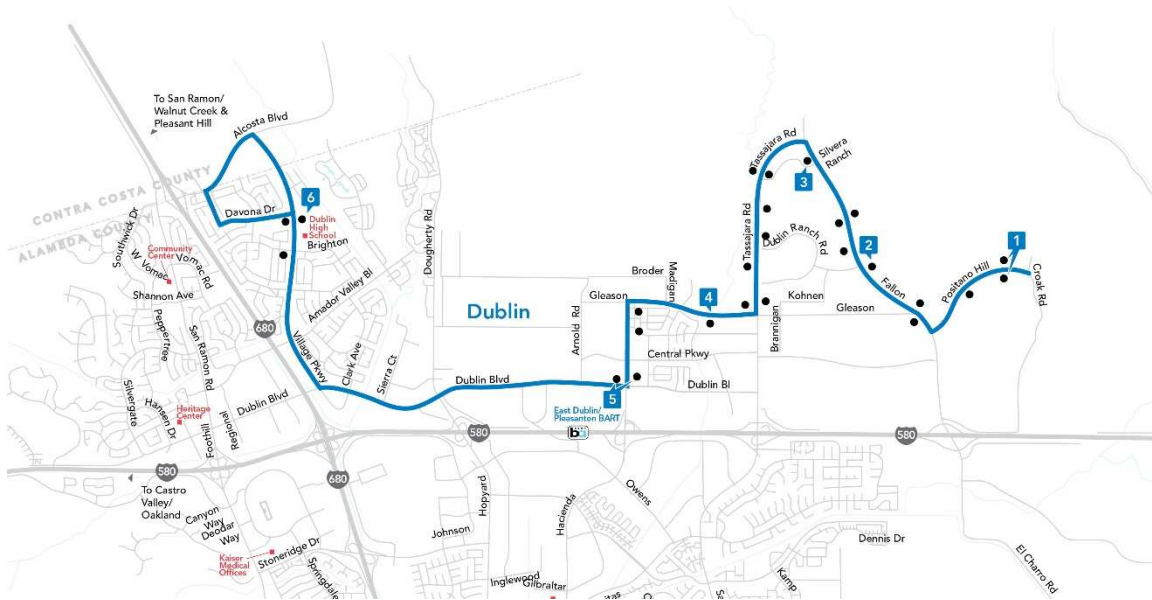
Source: LAVTA

Route 501 – Positano Hill

Overview

Route 501 is a school route that operates between Positano Hill, in eastern Dublin, and Dublin High School, in western Dublin. Route 501 operates three inbound trips (to Dublin High School) during the AM peak and two outbound trips (to Positano Hill) in the afternoon, between 3 PM and 4:30 PM. Designed to provide school transportation alone, Route 501 does not provide bidirectional service; service is available only in the inbound direction to Dublin High School during the AM peak and only in the outbound direction during the afternoon period. Route 501 only provides direct service to Dublin High School, but not to any of Dublin's three middle schools (Figure 25). With services coordinated around Dublin High School's morning and afternoon bell schedule, Route 501's inbound arrivals at the high school are scheduled at 7:00 AM, 7:27 AM, and 7:32 AM. Departures from Dublin High School are scheduled at 3:40 PM and 4:02 PM. Three buses are deployed for the 3:40 PM outbound trip, due to high passenger loads at this time. On Wednesdays, when Dublin High School uses a modified bell schedule, the second and third inbound trips leaving Positano Hill at 6:58 AM and 7:03 AM each leave 57 minutes later. The first inbound trip, leaving Positano Hill at 6:32 AM, does not operate on Wednesdays. Route 501's AM peak span of service is roughly 6:30 AM to 7:30 AM on all weekdays except Wednesdays, when its span of service is about 8 AM to 8:45 AM. In the afternoons, Route 501's span of service is roughly 3:30 PM to 4:30 PM. The route's scheduled one-way running time is between 28 and 32 minutes.

Figure 25 Route 501 Map



Source: LAVTA

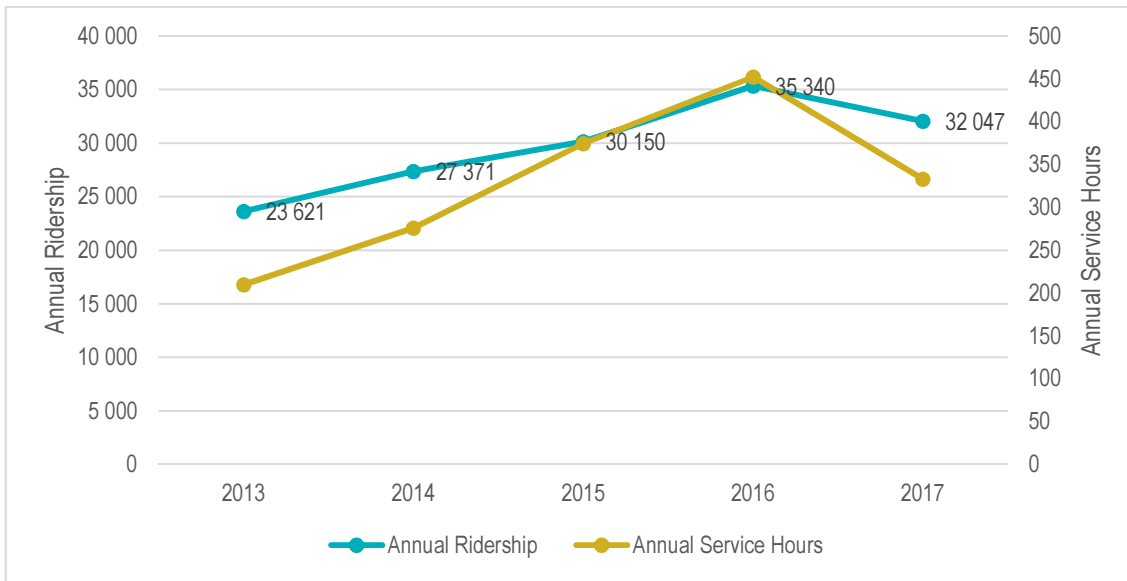
Ridership

Route 501 serves about 32,000 riders annually (Figure 26), making it the most popular of LAVTA's Dublin school routes. On a typical weekday, Route 501 serves 150 total riders and about 96 riders per service hour. Owing to its function as a school route, Route 501's ridership is highly clustered around Dublin High School. On average, it serves about 39 riders on a typical trip, however low ridership on an early morning trip and a 4:02 PM trip skew those numbers downward. At peak times it is not uncommon to see multiple buses at capacity of between 50 and 60 student on the three buses that depart at 3:40 PM.

The remaining ridership is fairly evenly distributed along the residential corridors of Tassajara Road, Fallon Road, and Positano Parkway (Figure 27). As Route 501's only major destination is Dublin High School, the route does not make connections at other potential generators of travel demand such as East Dublin/Pleasanton BART or Fallon Middle School. Due in partly to rising enrollment at Dublin High School and partly to Route 501's significant increase in service hours in the last five years, ridership has increased more than 35% since 2013 (Figure 26).

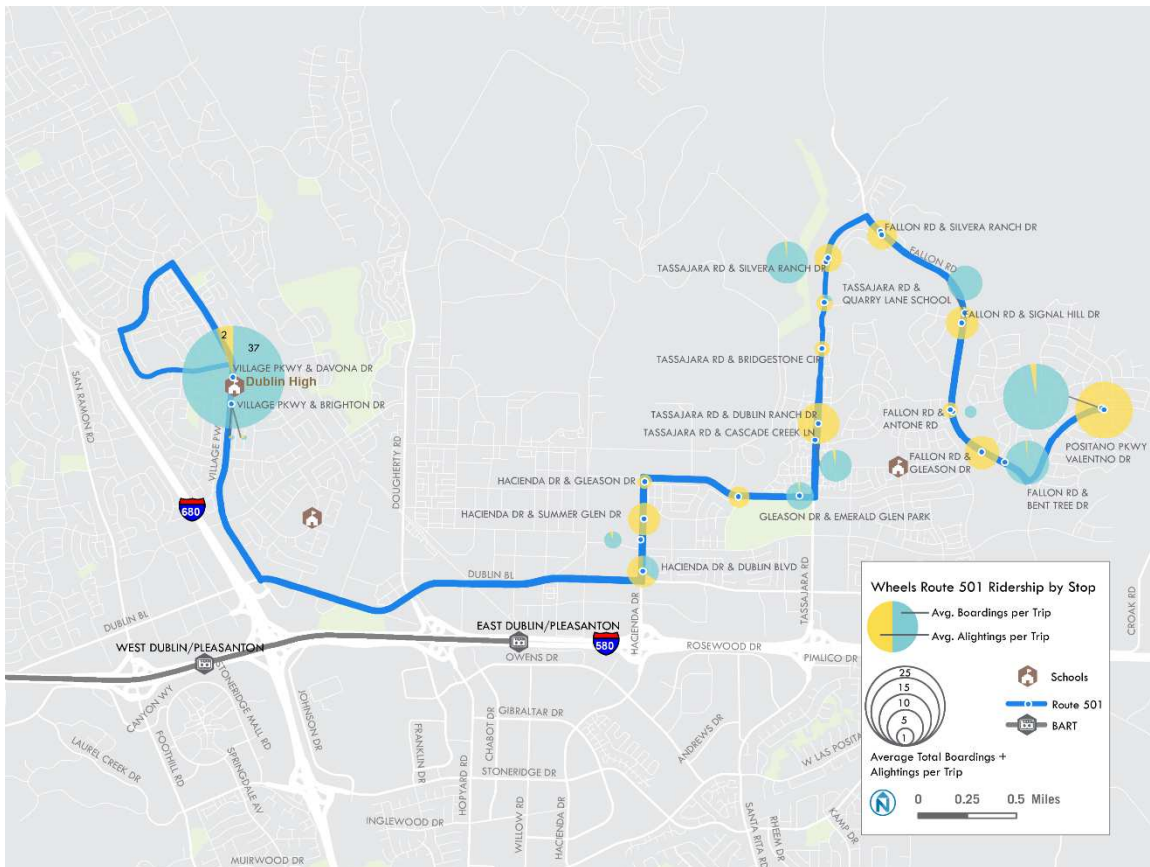
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Figure 26 Route 501 Annual Ridership vs. Service Hours



Source: LAVTA

Figure 27 Route 501 Ridership by Stop



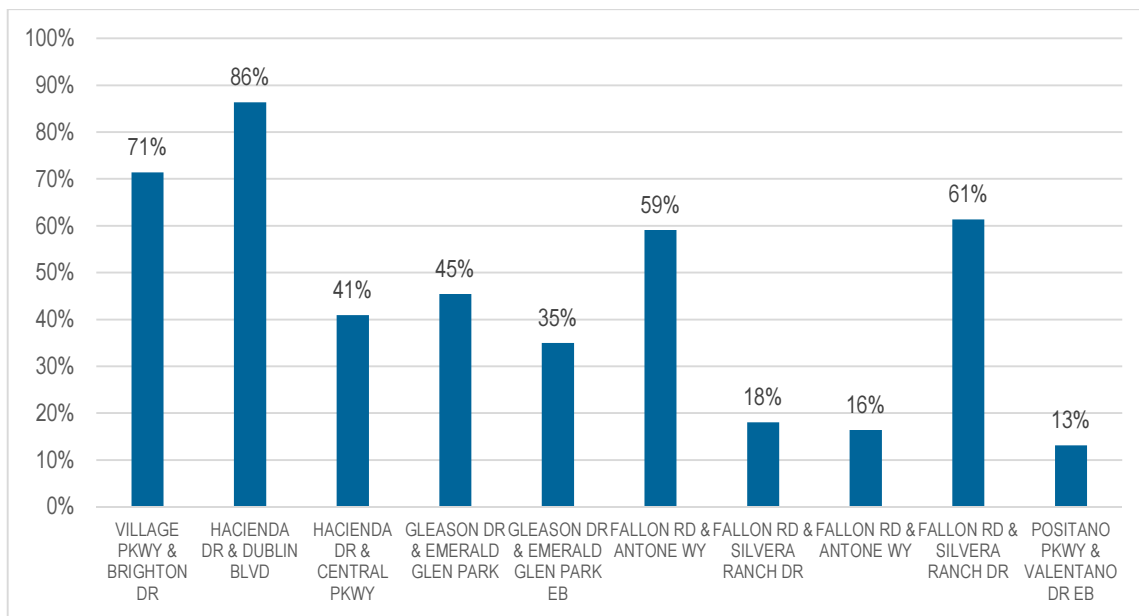
Sources: LAVTA, Alameda County GIS

On-time Performance

Route 501 has an overall on-time performance of 38%, the poorest of LAVTA's Dublin school routes. Only one of Route 501's time points, Hacienda Drive & Dublin Boulevard, achieves an On-time Performance of greater than 85%.

At Dublin High School (Village Parkway & Brighton Drive), 71% of trips leave Village Parkway & Brighton Drive (eastbound stop) on-time, which suggests getting people onto the bus for on-time departure is a challenge. At Route 501's eastern terminus, Positano Parkway & Valentano Drive, on-time performance is just 16% (Figure 28). This could be due to the way data is collected, with the Automatic Vehicle Locator (AVL) believing the bus to be in revenue service before it turns around to position itself for its first stop because it is in the specified geofenced area. This means the bus may not actually be early or late. However, it may also be compounded by insufficient dwell time at the beginning of the route where ridership is high.

Figure 28 Route 501 On-time Performance



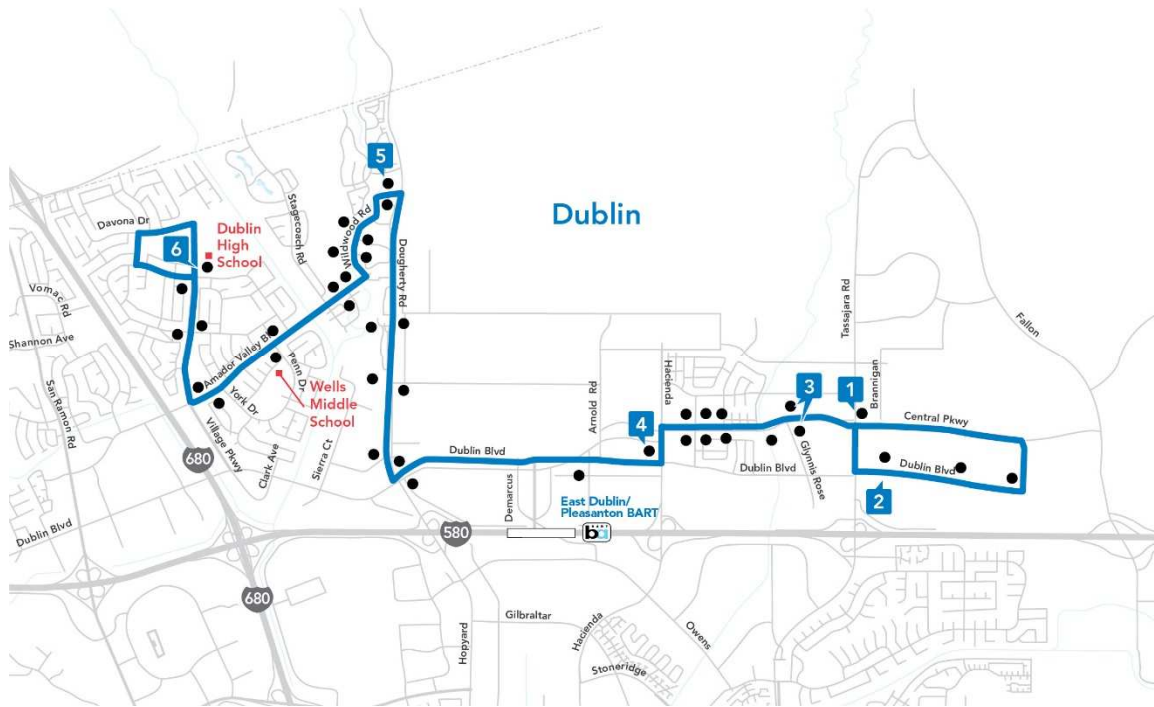
Source: LAVTA

Route 502 – Emerald Glen

Overview

Route 502 is a school route that connects Dublin High School and Wells Middle School, in western Dublin, with the Central Parkway and Dublin Boulevard corridors in eastern Dublin. Route 502 operates two daily trips on weekdays only: one daily inbound trip to Dublin High School during the AM peak, leaving Central Parkway & Chancery Lane at 7:09 AM, and one daily outbound trip that leaves Dublin High School at 3:40 PM. Due to Dublin High School's adjusted bell schedule on Wednesdays, Route 502's AM peak trip leaves 57 minutes later on Wednesdays. To accommodate higher passenger loads, two buses are scheduled for the outbound 3:40 PM trip from Dublin High School. Designed to provide school transportation alone, Route 502 does not provide bidirectional service; service is available only in the inbound direction to Dublin High School during the AM peak and only in the outbound direction during the afternoon period. Route 502 provides direct service to Wells Middle School and Dublin High School, though it is timed for service to Dublin High (Figure 29). Route 502's scheduled one-way running time is between 23 and 26 minutes.

Figure 29 Route 502 – Emerald Glen



Source: LAVTA

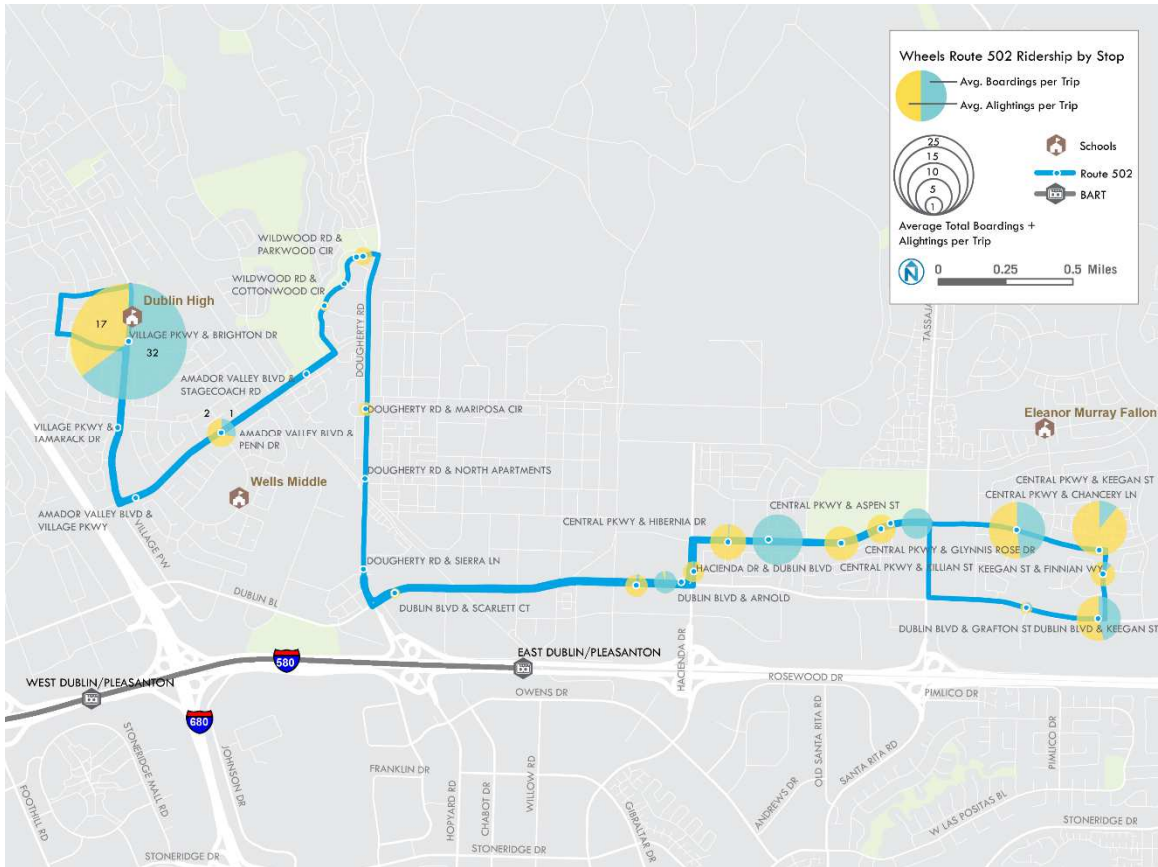
Ridership

Route 502 serves about 12,000 riders annually (Figure 31), making it the third-most popular of school route in Dublin. On a typical weekday, Route 502 serves 63 total riders within its single daily hour of weekday revenue service. As a school route, Route 502's ridership is highly clustered around Dublin High School, where it serves about 49 riders on a typical trip. An additional three riders typically board and alight at Wells Middle School. The remaining ridership is fairly evenly distributed along the residential corridors of Dublin Boulevard and Central Parkway (Figure 30).

Ridership on the 502 declined significantly between 2016 and 2017, from about 22,000 annual riders to about 12,000 in 2017. Over this time period, Route 502 received a reduced number of service hours and Route 504 was created; some previous 502 riders may have moved to this the new route 504. Ridership is expected to grow as residential development expands along Central Avenue.

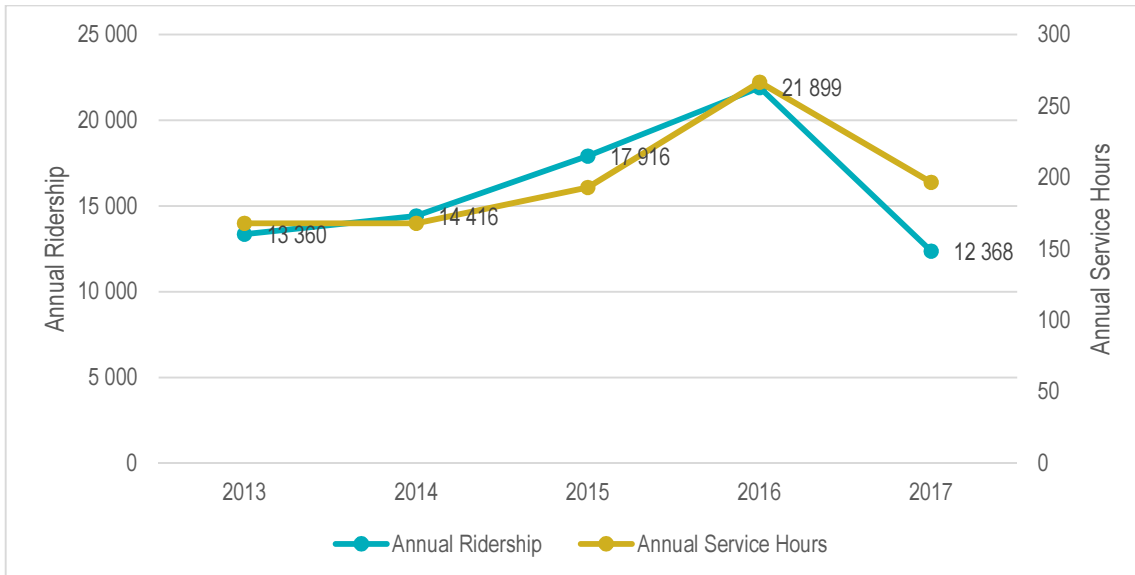
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Figure 30 Route 502 Ridership by Stop



Source: LAVTA, Alameda County GIS

Figure 31 Route 502 Annual Ridership vs. Service Hours

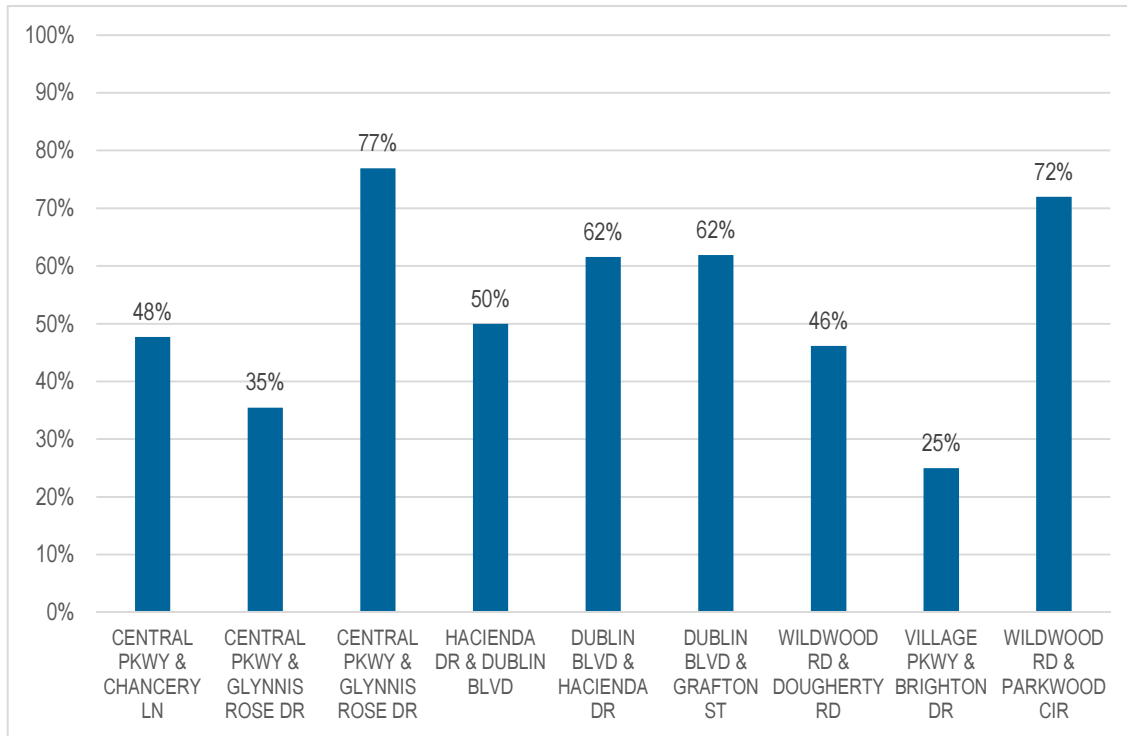


Source: LAVTA

On-time Performance

Route 502 has an overall on-time performance of 64%, ranking third of LAVTA's four published school routes in Dublin. None of Route 502's time points achieves an on-time performance greater than 85%. At Dublin High School (Village Parkway & Brighton Drive), just 25% of trips arrive at Village Parkway & Brighton Drive (westbound stop) on-time, with most of these trips leaving early. At Route 502's eastern terminus, Central Parkway & Chancery Lane, on-time performance is just 48%, with most trips arriving early (Figure 32).

Figure 32 Route 502 On-time Performance



Source: LAVTA

Route 503 – Shannon Park

Overview

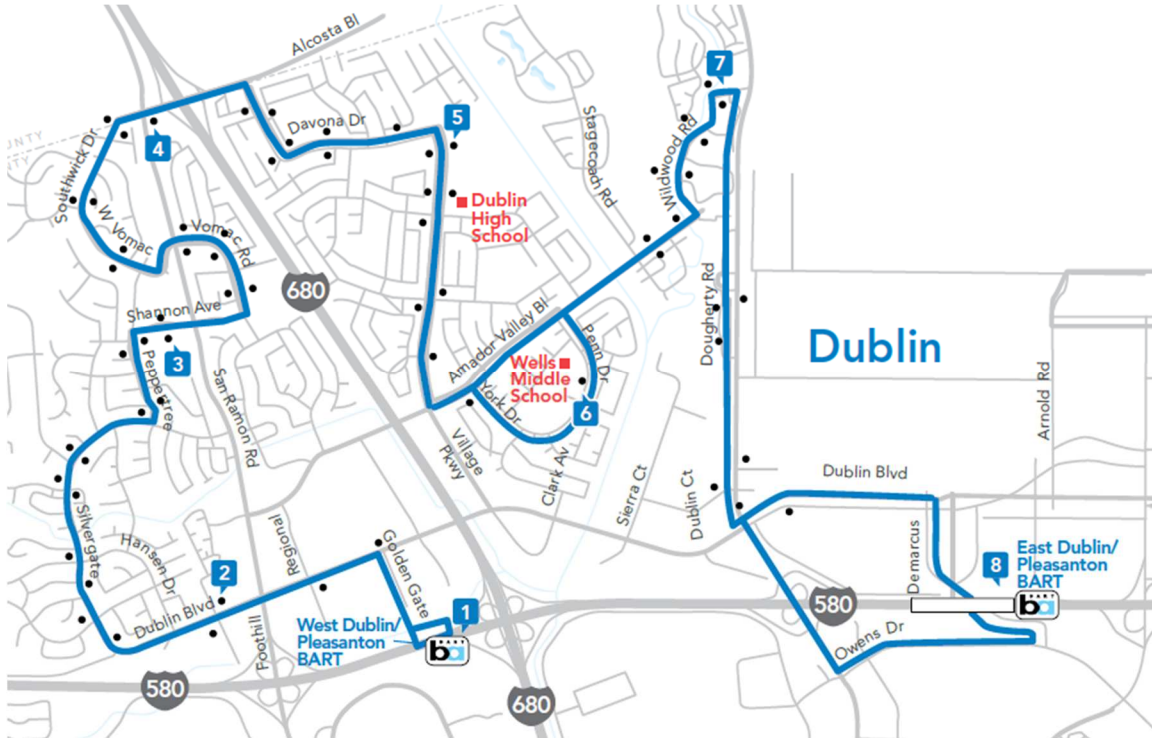
Route 503 is a school route that connects Dublin High School and Wells Middle School, in western Dublin, with the West Dublin residential neighborhood west of I-680. The route's western terminus is anchored by the West Dublin/Pleasanton BART station, and its eastern terminus is the East Dublin/Pleasanton BART station. Route 503 operates four daily trips on weekdays only. Two daily eastbound trips to Dublin High School and Wells Middle School depart from the West Dublin neighborhood during the AM peak, leaving West Dublin/Pleasanton BART at 7:15 AM (for Dublin High School students⁷) and 7:52 AM (for Wells Middle School students). Two daily westbound trips leave Wells Middle School, at 3:31 PM and 5:17 PM.⁸ Due to the adjusted bell schedule on Wednesdays, Route 503 operates an additional westbound trip that leaves from Wells Middle School at 2:12 PM. Route 503 does not provide bidirectional service; service is available only in the eastbound direction toward

⁷ This trip does not provide service to Wells Middle School.

⁸ The 5:17 PM trip originates at West Dublin/Pleasanton BART.

Dublin High School during the AM peak and only in the westbound direction during the afternoon period. Route 503 provides direct service to Wells Middle School and Dublin High School; no other Dublin schools receive direct service from this route (Figure 33). Route 503's scheduled one-way running time is between 42 and 47 minutes between West Dublin/Pleasanton BART and East Dublin/Pleasanton BART.

Figure 33 Route 503 – Shannon Park



Source: LAVTA

Ridership

Route 503 serves about 7,000 riders annually, making it the least popular of LAVTA's published Dublin school routes. Based on sample data pulled in the spring of 2018, Route 503 carries far more riders in the afternoon than in the morning. This makes sense because there are two morning trips that each cover the bell time of one school. In the evening, the route picks up students from both schools. This trip generally carries between 30 and 44 students, based on sample data. The trip that runs at 5:17 PM trip carried no people in the days that were sampled.

In addition to low ridership on the later evening trip, ridership on the portion of the route east of Wells Middle School carried between zero and four riders most days. The distribution of stop activity is shown in Figure 34.

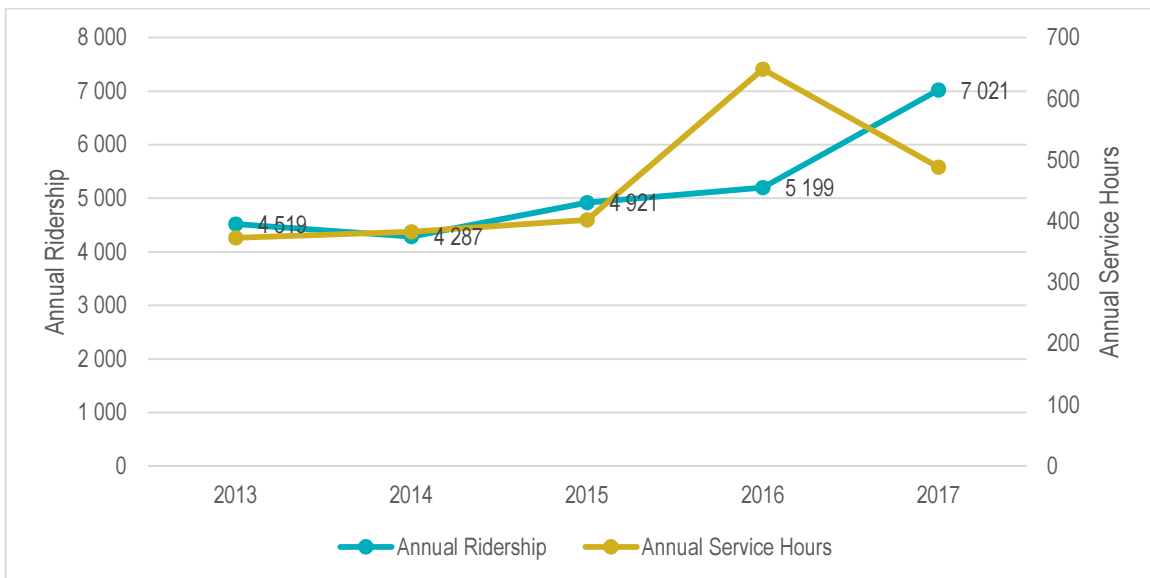
Annual ridership on Route 503 has increased 40%, from about 5,000 in 2013 to about 7,000 in 2017. The increase in service hours shown in Figure 35 is artificial, as they reflect a temporary change in recordkeeping of hours that have since been reclassified as deadhead.

Figure 34 Route 503 Ridership by Stop



Source: LAVTA

Figure 35 Route 503 Annual Ridership vs. Service Hours

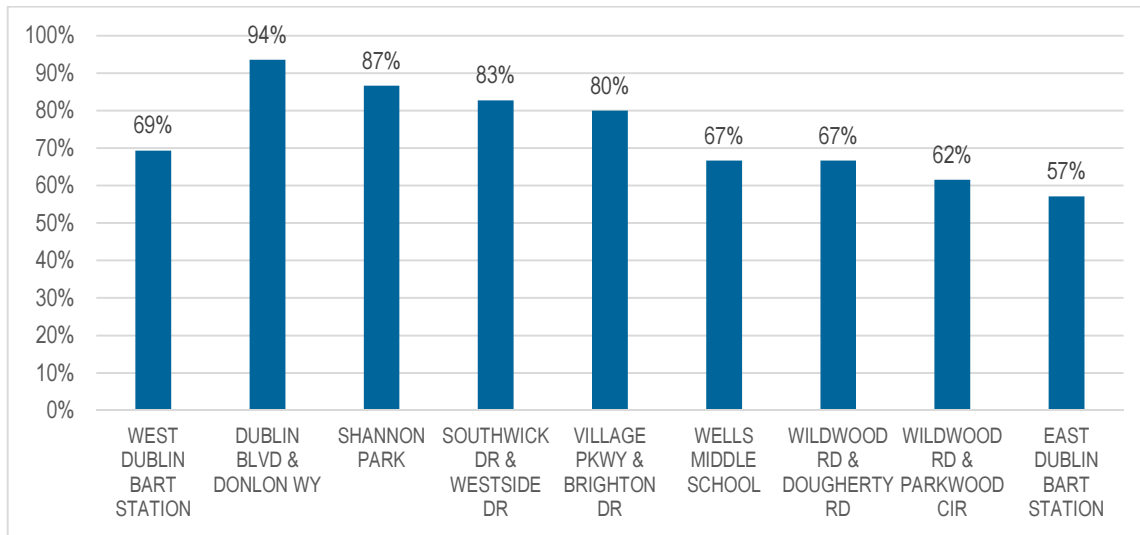


Source: LAVTA

On-time Performance

Route 503 has an overall on-time performance of 77%, the best of LAVTA's five school routes. The segment of Route 503 between West Dublin/Pleasanton BART and Dublin High School regularly achieves an on-time performance of greater than 85%. At Dublin High School (Village Parkway & Brighton Drive), about 80% of trips arrive at Village Parkway & Brighton Drive (eastbound stop) on-time, with most of these trips leaving early. On-time performance worsens east of Dublin High School, however, with all Route 503 time points between Dublin High School and East Dublin/Pleasant BART scoring on-time performances of less than 70% (Figure 36).

Figure 36 Route 503 On-time Performance



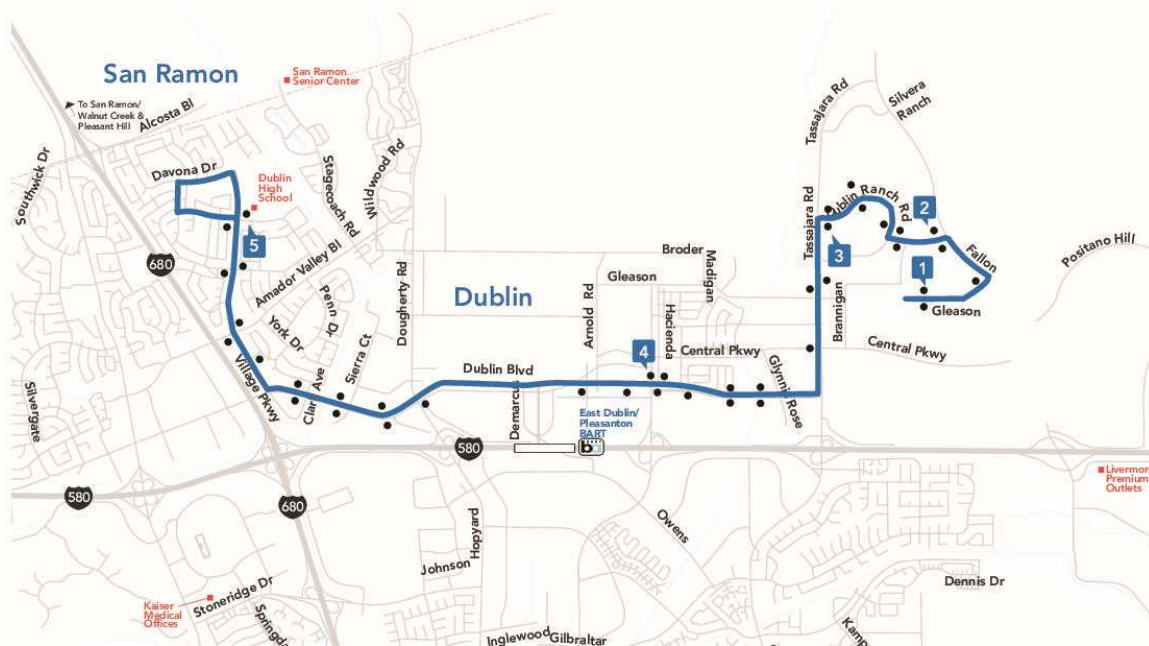
Source: LAVTA

Route 504 – Dublin Ranch

Overview

Route 504 is a school route that connects Dublin High School and eastern Dublin residential neighborhood of Dublin Ranch. The route's western terminus is Dublin High School, and its eastern terminus is the intersection of Gleason Drive & Brannigan Street. Route 504 operates two daily trips on weekdays only. One daily westbound trip to Dublin High School departs during the AM peak, leaving Gleason Drive & Brannigan Street at 7:08 AM. One daily eastbound trip departs from Dublin High School at 3:40 PM. Due to higher passenger loads, two bus vehicles are deployed on the afternoon trip. On Wednesdays, the 7:08 AM departure leaves 57 minutes later due to adjusted bell schedules. Designed to provide school transportation alone, Route 504 does not provide bidirectional service; service is available only in the westbound direction to Dublin High School during the AM peak and only in the eastbound direction during the afternoon period. Route 504 only provides direct service to Dublin High School; no other Dublin schools receive direct service from this route (Figure 37). Route 504's scheduled one-way running time is between 27 and 31 minutes.

Figure 37 Route 504 – Dublin Ranch

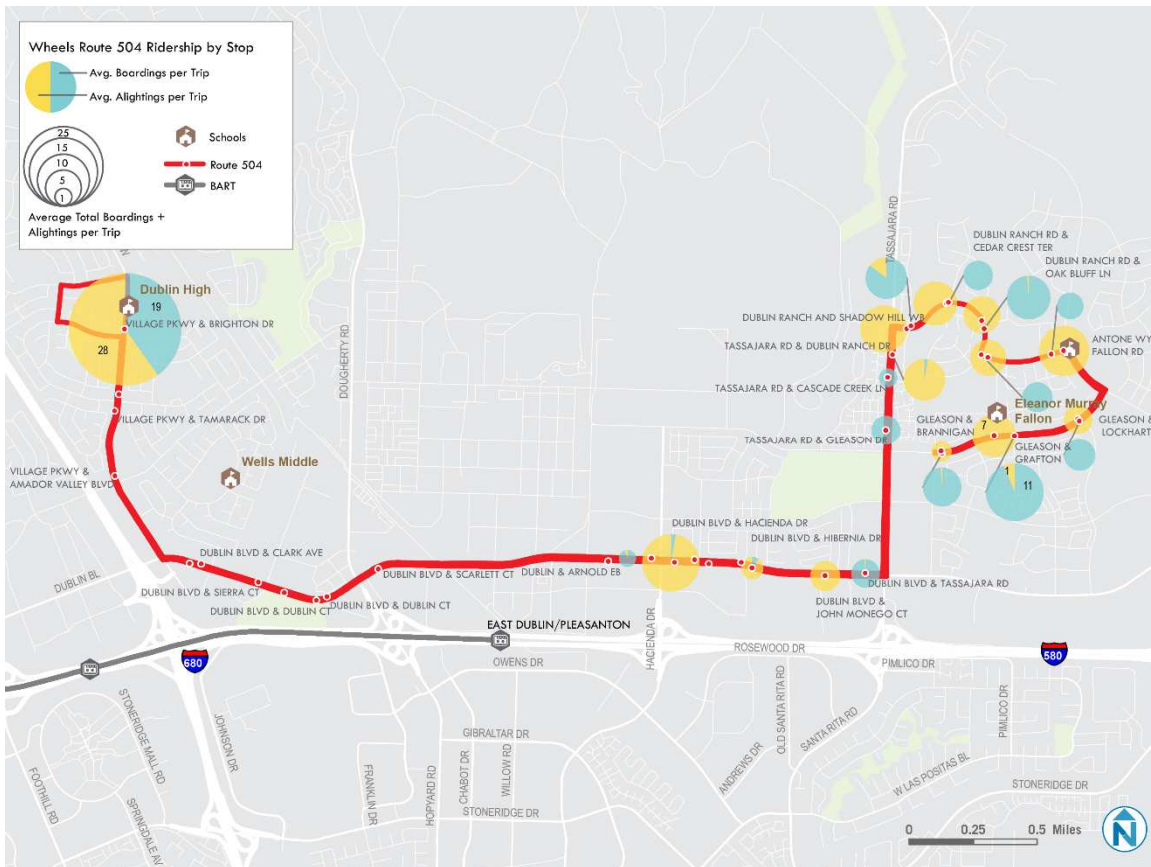


Source: LAVTA

Ridership

Route 504 serves about 19,000 riders annually, making it the second-most popular of LAVTA's five school routes. On a typical weekday, Route 504 serves 108 total riders, or 106 riders per revenue service hour. As a school route, Route 504's ridership is highly clustered around Dublin High School, where it serves about 47 riders on a typical trip (Figure 38). The remaining ridership is fairly evenly distributed along the Dublin's residential corridors, such as Dublin Boulevard, Dublin Ranch Drive, and Gleason Drive (Figure 38). Because of Route 504's service design as a school route, it does not serve East Dublin/Pleasanton BART station. Route 504 is one of LAVTA's newest routes, and it did not operate before the 2017 fiscal year.

Figure 38 Route 504 Ridership by Stop

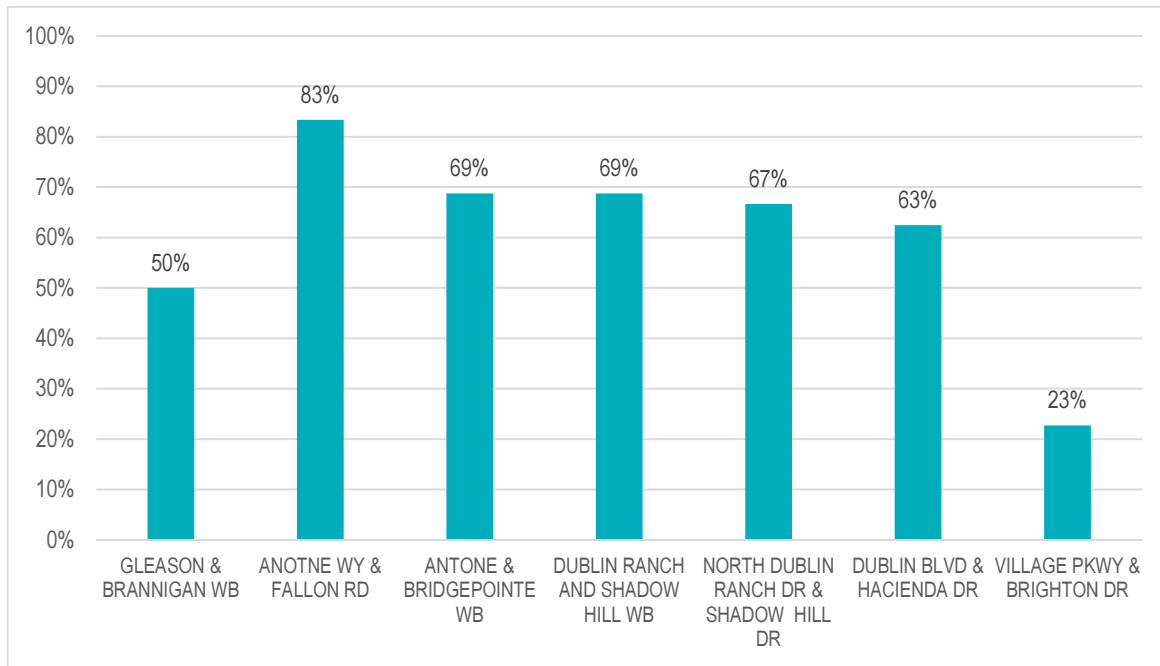


Sources: LAVTA, Alameda County GIS

On-time Performance

Route 504 has an overall on-time performance of 63%, the third-best of LAVTA's five school routes. No segments of Route 504 achieve an on-time performance of greater than 85%. On-time performance is poorest at Dublin High School (Village Parkway & Brighton Drive), where just 23% of trips arrive at Village Parkway & Brighton Drive (eastbound stop) on-time, with most of these trips leaving early. On-time performance averages between 60% and 70% on Dublin Boulevard, Antone Way, and Dublin Ranch Drive (Figure 39).

Figure 39 **Route 504 On-Time Performance**



Source: LAVTA

Route 505 – Positano Hill

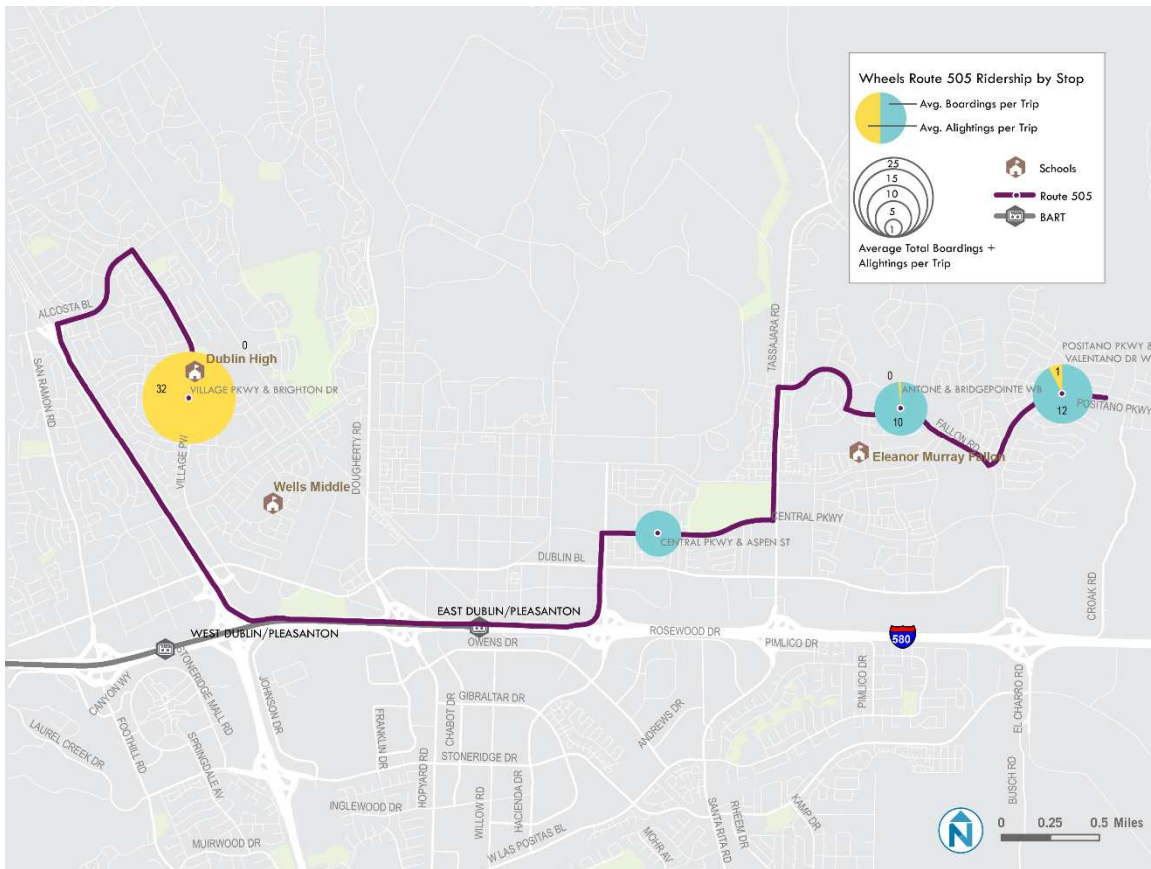
Overview

Route 505 is an unpublished bus route that provides extra capacity for the other school routes in the morning when there is overcrowding. This “sweeper” service does not have a scheduled running time. The route’s western terminus is Dublin High School and connects to the eastern Dublin residential neighborhoods with the eastern terminus wherever it is needed. The bus only runs if an operator let’s dispatch know they are overcrowded and about to leave students behind at the curb.

Ridership

In 2107, Route 505 served about 4,000 riders. On a typical weekday, Route 505 serves 21 total riders, or 18 riders per revenue service hour. It serves about 32 riders on a typical trip (Figure 40). The remaining ridership is fairly evenly distributed along the Dublin’s residential corridors, such as Central Parkway, Fallon Road, and Positano Parkway. Because of Route 505’s service design as a school route, it does not serve East Dublin/Pleasanton BART station; no bus stop accommodations exist in the I-580 right-of-way on which BART’s Dublin/Pleasanton branch operates. Route 505 is one of LAVTA’s newest routes, and it did not operate before the 2017 fiscal year.

Figure 40 Route 505 Ridership by Stop



Sources: LAVTA, Alameda County GIS

On-time Performance

There is no on-time performance scheduled for this route since it is not a public-facing route.

3 PUBLIC ENGAGEMENT

COMMUNITY SURVEY

Survey Methodology and Outcomes

In March 2018, Nelson\Nygaard surveyed Dublin Unified School District (USD) parents, students, and faculty/staff about school transportation needs, values and preferences and their priorities for improving Wheels Bus service. The survey was hosted on www.SurveyMonkey.com and publicized through Dublin USD and LAVTA social media and other online communication channels.

The survey asked parents, students, and faculty/staff different types of questions based on their affiliation with Dublin USD. Parents were asked about the travel behavior and transportation needs of their school-age children (with responses excluded for children who will be in the 5th grade or younger during the 2018-2019 school year). Students were asked to describe their own travel behavior and values/preferences for improving Wheels Bus service, and faculty/staff answered similar questions on behalf of their students. Results of the survey are categorized according to respondents' affiliations as parents, students, or faculty/staff. Full results and accompanying charts are provided in the Appendix A.

Among the valid responses used for this analysis, the breakdown of participants included:

- 46 Students
- 289 Unique parents, answered for 441 students
- 17 Staff or administration

Key Findings: Parents

Parent respondent characteristics:

358 parents provided responses for 441 children; of these, there were 305 responses for children who will be entering middle or high school in the 2018-2019 school year. More than half of these responses (57%) were for children who will be enrolled at Dublin High School.

Importance of Wheels Bus service

Wheels Bus service is especially important for students at Dublin High School; **nearly three-quarters of Dublin High School parents (74%) reported that their students wouldn't get to school without Wheels Bus service**, compared to 56% of all Dublin USD parents. The importance of Wheels Bus service for school transportation is evidenced by student travel patterns themselves (as reported by their parents). Just 4% of Dublin High School parents and 13% of all Dublin USD parents stated that Wheels Bus service is not important or useful for their children.

School transportation patterns

Student propensity to take Wheels Bus service is higher during the afternoon than during the morning. In the mornings, a plurality of both middle school students (54%) and Dublin High School students (46%) are driven to school, while the plurality of middle school students (40%) and a majority of high school students (56%) use Wheels Bus service to return from school during the afternoon. **Wheels Bus was the most popular reported mode choice of students leaving school, regardless of the type of after-school activity they pursued**, if any. Districtwide, pluralities of students take the Wheels Bus after school, while clear majorities of Dublin High School students do so. **Route 501 is the most popular of Dublin's school routes**, followed by 502, 504, and 503 in descending order of popularity, according to surveyed parents. Non-school routes like Routes 1, 2, and 30R were much less popular, selected by less than 10 percent of parents.

Dublin High School students are much more likely to be frequent Wheels Bus riders than middle school students, according to the parents' survey. A clear majority of Dublin High School students (59%), ride the bus at least four days per week, while less than one-quarter (24%) do not ride the bus at all. The corresponding figures for the Dublin USD parent cohort as a whole were 43% and 45%, respectively.

Priorities for Wheels Bus service

Parents reported that timeliness is their highest priority for Wheels Bus service, ranking of 2.18, on a 1 to 5 scale where "1" is the highest priority and "5" is the lowest priority. Timeliness was followed closely by safety and comfort (ranked 2.39) and convenience (ranked 2.52). The remaining considerations of travel time and cost were much lower priorities for parents, ranking 3.60 and 4.07, respectively. There was little difference in the preferences expressed by Dublin High School parents in comparison to other parents.

Parents' values: trade-offs

Large majorities of parents prefer having bus stops closer to home and longer bus rides, regardless of which school their child attended, rather than having longer walks to the bus stop with shorter bus rides. This preference was nearly universal among parents regardless of their students' school travel mode, the school they attended, or the Wheels Bus route they took, if applicable. **Parents also reported broad preferences for fewer, more direct Wheels Bus routes providing direct access to school** instead of a broader range of bus routes that may require a transfer. Again, these preferences held regardless of the child's school travel mode or Wheels Bus route, if applicable. However, parents with children attending Wells Middle School or Cottonwood Creek School were about equally likely to favor a broader range of bus routes that may require a transfer. The broad preference for having bus stops closer to home and longer bus rides, expressed in the trade-off question above, may conflict with the stated preference for fewer, more direct bus routes because ensuring greater bus stop distribution requires a greater number of bus routes.

Key Findings: Students

Students value the Wheels Bus service to an even greater degree than their parents; nearly three-quarters of students (72%) say it is very important, and that they wouldn't be able to get to school without it, while just four percent said that it was not important.

Access to bus stops does not pose a problem for most students: just 13% agreed with the statement "I have trouble getting to the bus stops."

The cost of bus fares is not a problem for most students; 61% of students disagreed with the statement "Riding the bus is too expensive."

Travel time and bus stop amenities are the two main problems most students have with Wheels Bus service. A majority (55%) of students agreed that "waiting for the bus is uncomfortable or unpleasant," while 58% agreed that "travelling to school by bus takes too long."

Students were more likely to prefer having a bus stop closer to their homes, and longer bus rides, than travel farther to bus stops but have a shorter bus ride, by a margin of 28 percent (64 percent to 36 percent).

Students were split fairly evenly on the other value trade-offs question of whether they would prefer fewer bus options with direct access to school (48 percent) or more bus options with some routes requiring a transfer, 52 percent.

Key Findings: Faculty/Staff

The response rate among faculty/staff was very low. Out of the 17 responses, seven were affiliated with elementary schools, which were not the main focus of this analysis. Another six were with the high school, and only three were affiliated with one of the two middle schools. One representative represented the Unified School District. Staff

agreed that timeliness was the most important priority for getting kids to school, with travel time, safety and comfort, cost, and then convenience following.

Among faculty and staff, 53% of respondents say this transit service is critical to those who use it, and another 29% think it is nice to have, but it is not needed. Only 16% think the service is not needed.

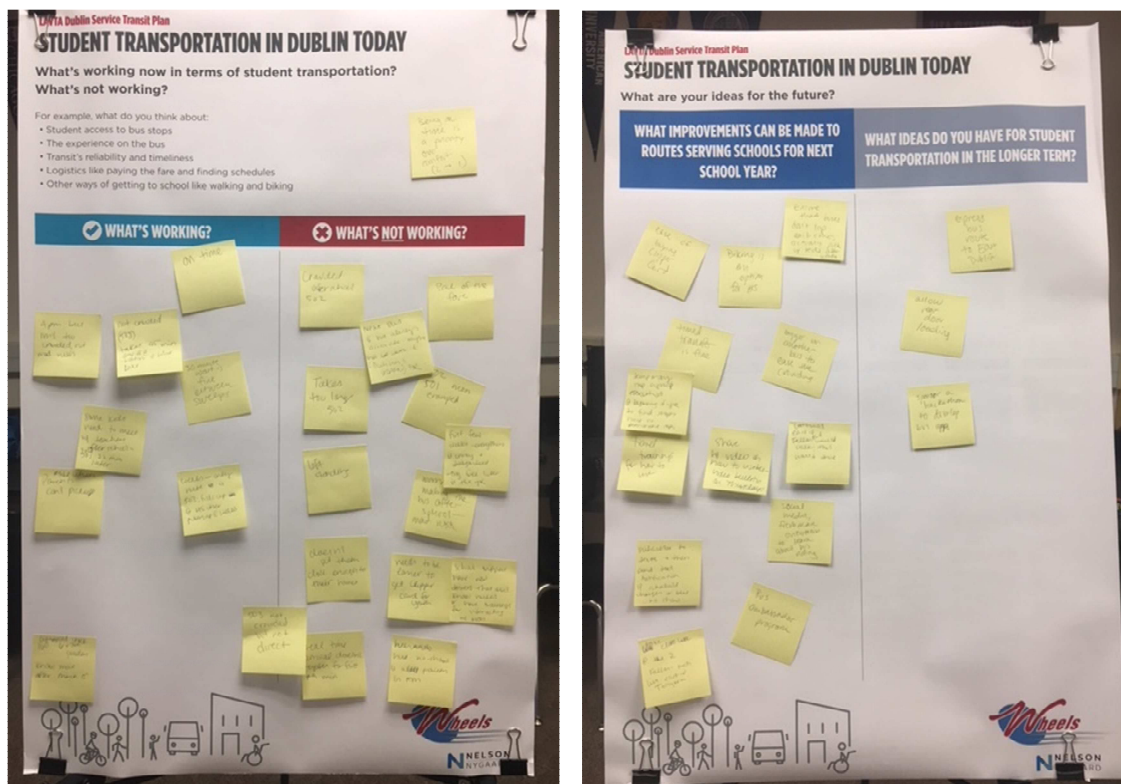
COMMUNITY OPEN HOUSE

LAVTA and Dublin USD hosted an open house associated with this transit plan at Dublin High School on Thursday, March 8, 2018. Though the event was sparsely attended, staff were able to interact in a focus group-type setting with a handful of students, as well as a few parents and school administrators.

Participants were asked to provide insight on the following two questions via poster boards:

- What's working now in terms of student transportation? What's not working?
- What improvements could be made to routes serving schools for next school year? What ideas do you have for student transportation in the longer term?

Figure 41 Open House Posters



Working and Not Working Today

In terms of what is working well today, participants noted that buses are mostly on-time and provide reliable on-time transportation to school. Participants said some buses are not overly-crowded (like the 503 and 504) and that the sweeper bus 30 minutes after the initial buses in the morning is well-timed.

On the other end of the spectrum, participants noted problems with overcrowding on buses like the 501 and 502 after school. Students in particular noted a "mad rush" for the bus after school creates a chaotic environment because students are worried they won't be able to get on the bus. The group debated whether it would be better to have all buses leave at the same time, though some also said it's helpful to have an additional trip about 20

minutes after school gets out in case a student needs to speak with a teacher after school. A parent noted that the real-time arrival information doesn't register for the first few stops of a trip and that school tripper routes frequency get new drivers without much experience. The group discussed special training for the drivers of the school trippers.

Improvement Ideas

Open house participants generated the following improvement ideas:

- Make biking easier for high school students
- Improve ease of getting a youth Clipper card
- Use larger buses or add another trip on crowded routes like 502 and 501
- Add temporary stop signage during the first few weeks of school so kids can find stops that may have moved
- Incorporate travel trainings on how to use the bus and show the video made by the DHS students
- Consider an express route from DHS to East Dublin
- Allow rear-door boarding
- Sponsor a hackathon for students to develop a LAVTA bus app
- Develop a bus ambassador program

4 RECOMMENDATIONS

Based on review of existing conditions and input received through the community survey and open house, Nelson\Nygaard generated a set of recommended improvements for near-term implementation (school year 2018-19) and another set for further consideration and review for the following school years, as Dublin population and school enrollment grows. The following recommendations have been developed in coordination with scheduling staff and operations staff to ensure feasibility. Improvement concepts that were considered included:

- Coverage/route alignment
- Vehicle crowding and capacity
- Scheduling efficiencies
- Information/communication

Phase 1 Recommendations: School Year 2018-19

The recommendations are proposed for implementation for the start of the 2018-2019 school year, as shown in Figure 42. LAVTA staff will create schedules based on the recommendations and monitor ridership levels to make tweaks or changes, as needed.

The number of vehicles needed during the morning peak will stay the same. In the afternoon, when there are more riders, two additional buses are recommended for the beginning of the 2018-19 school year, with an increase in revenue hours of just over one hour per day.

Figure 42 Summary of Recommendations for 2018-2019 School Year

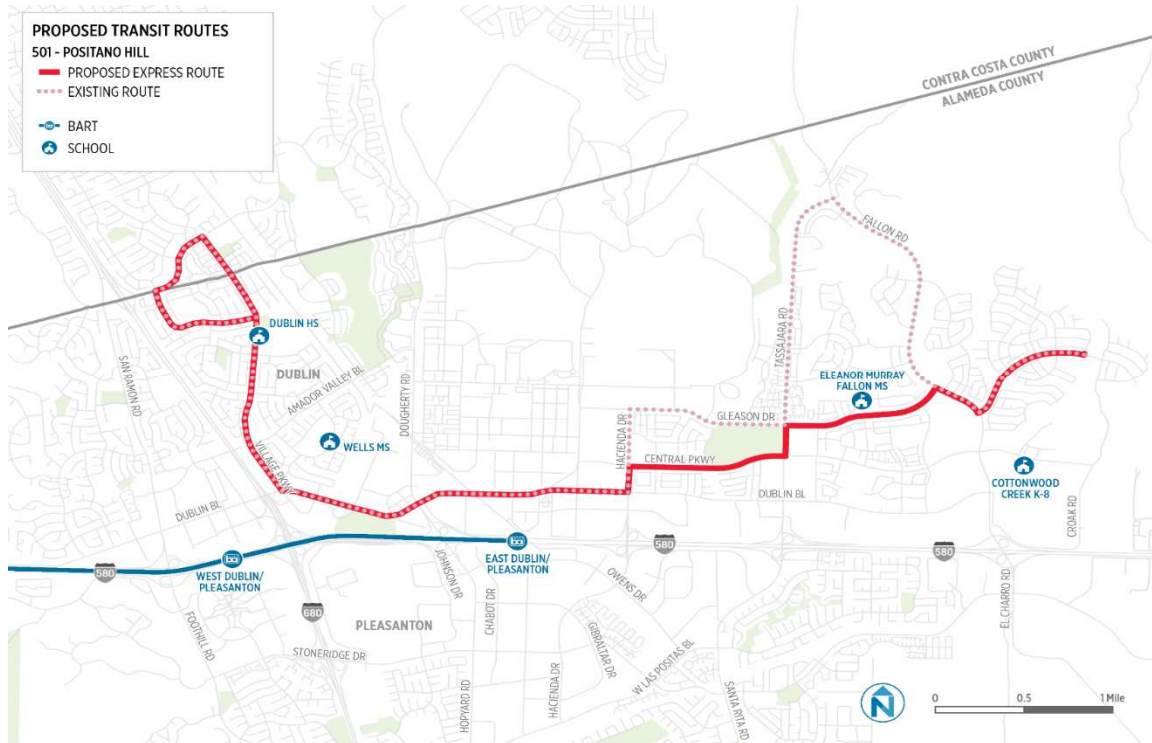
Recommendation	Route	Description	Vehicle Change	Revenue Hour Change – AM	Revenue Hour Change – PM
Eliminate 6:30 AM trip	501	Current trip is underutilized	0	- 0:45	
Add 7:00 AM trip	501	Will address overcrowding	+1	+ 1:00	
Add 3:40 PM trip	501	Will address overcrowding	+1		+ 1:00
Add 5:00 PM trip	501	Will address public comments for later service	0		+ 1:00
Incorporate express bus service	501	Address public comments for more direct route	0	- 0:05	- 0:05
Add bus stops at Tassajara Rd and Fallon Rd	501	Better access for new housing developments east of Silvera Ranch Dr	0	0:00	
Extend to Cottonwood Creek/Jordan Ranch	502	New housing developments need service to DHS	0	+ 0:15	+ 0:15
Eliminate 5:00 PM trip	503	Very low ridership and not serving students	0		- 1:45
Eliminate segment of route east of Wells Middle School	503	Low ridership on non-student segment of the route	0	- 0:15	
Use 40' coach in West Dublin	503	Will address overcrowding	0	-	
Add 3:40 PM trip	504	Will address overcrowding	+ 1		+ 0:45
Eliminate non-published sweeper route	505	Will become part of official 501 service, more clear for the public	-1	- 1:00	
Total			2 in PM	- 0:50	+ 1:10

Route 501

There are many changes proposed to this route.

- By eliminating one unproductive trip on Route 501 that runs too early in the morning to be useful, that revenue hour can be shifted to another time when it can be better utilized.
- The sweeper bus known behind the scenes as Route 505 will be made public by converting to Route 501
- For this phase, an additional bus is recommended on Routes 501 in the afternoon at 3:40. This will require an additional trip. However, with this extra vehicle, new configurations can be tested by the schedules to see if any time savings can be realized by doing limited stop service.
- An additional trip will be provided at 5:00 PM to address comments from the community. This trip will not require an extra vehicle, but will add an hour of revenue service.

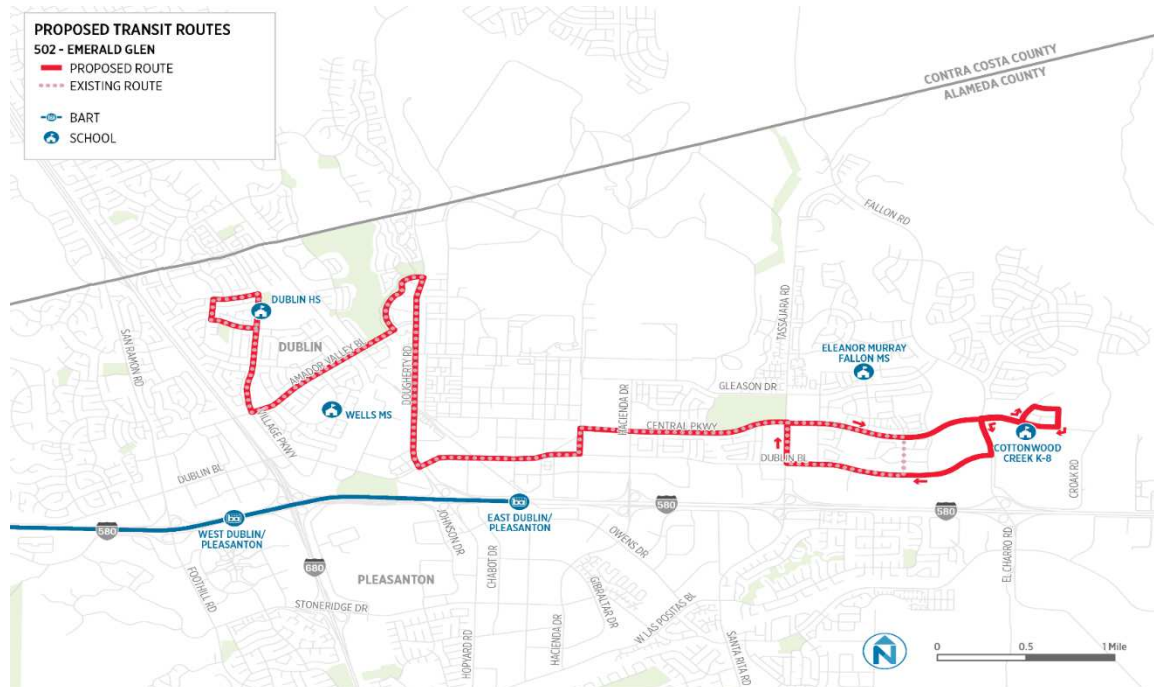
Figure 43 Proposed Express Bus Route 501



Route 502

- This route will be extended to the east to pick up students who live in the new housing developments at Jordan Ranch and Cottonwood Creek. Growth is expected to increase in this area, so staff will watch for overcrowding as the school year goes on. In future years, as Croak gets developed, there may be more opportunity to tie in with housing developments to the north.

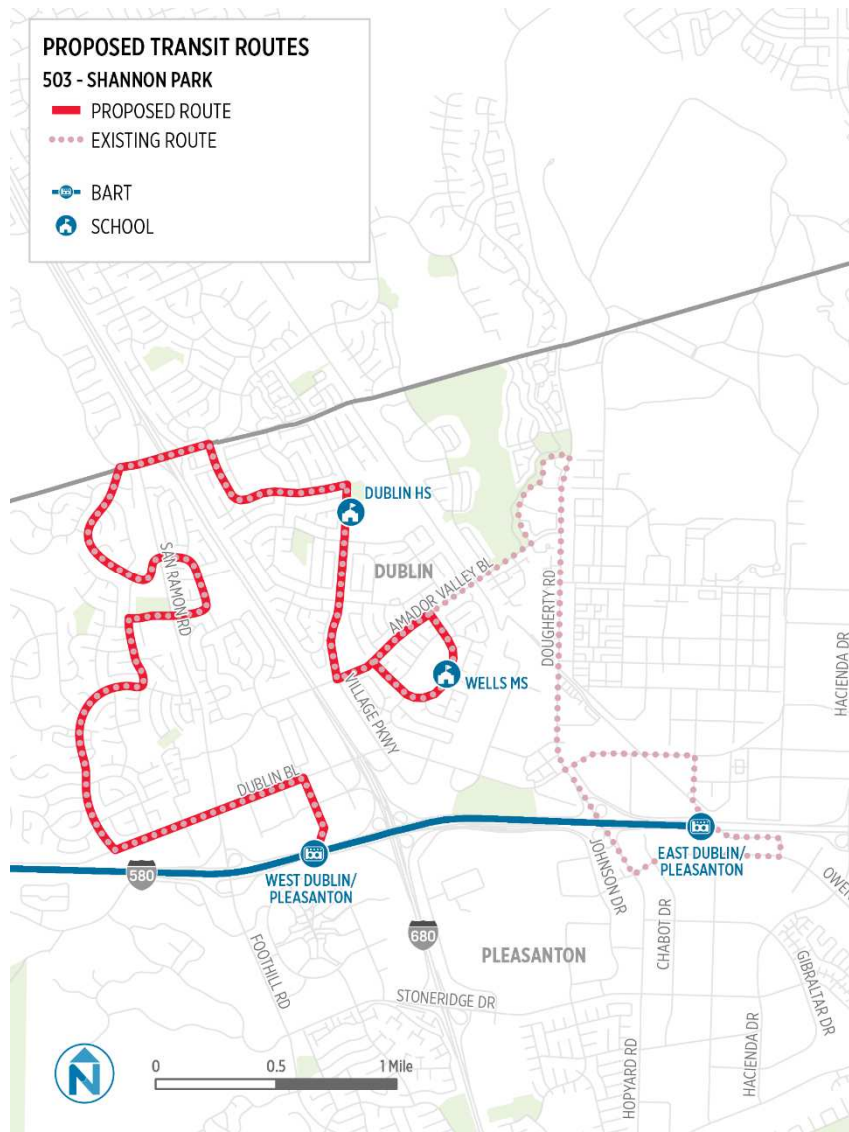
Figure 44 Proposed Route 502 Alignment



Route 503

- The two morning trips will be changed by ending revenue service after dropping students off at Wells Middle School. Serving the area to the east of Wells Middle School was an attempt at giving service to a specific residential pocket on Wildwood, but its ridership is too low to continue serving it. Any adults who will miss this service are eligible for the Go Dublin pilot project to have up to \$5 of their Uber/Lyft/DeSoto Cab company fare.
- The PM trip should be served exclusively with a 40-foot bus.
- With the 503 no longer being tied to the same vehicle that was used to interline with the 501 in the mornings, a smaller vehicle could be used for either or both of the morning trips.

Figure 45 Proposed Route 503 Alignment



Route 504

- Route 504 is ready for an additional bus in the afternoon to address overcrowding.

Route 505

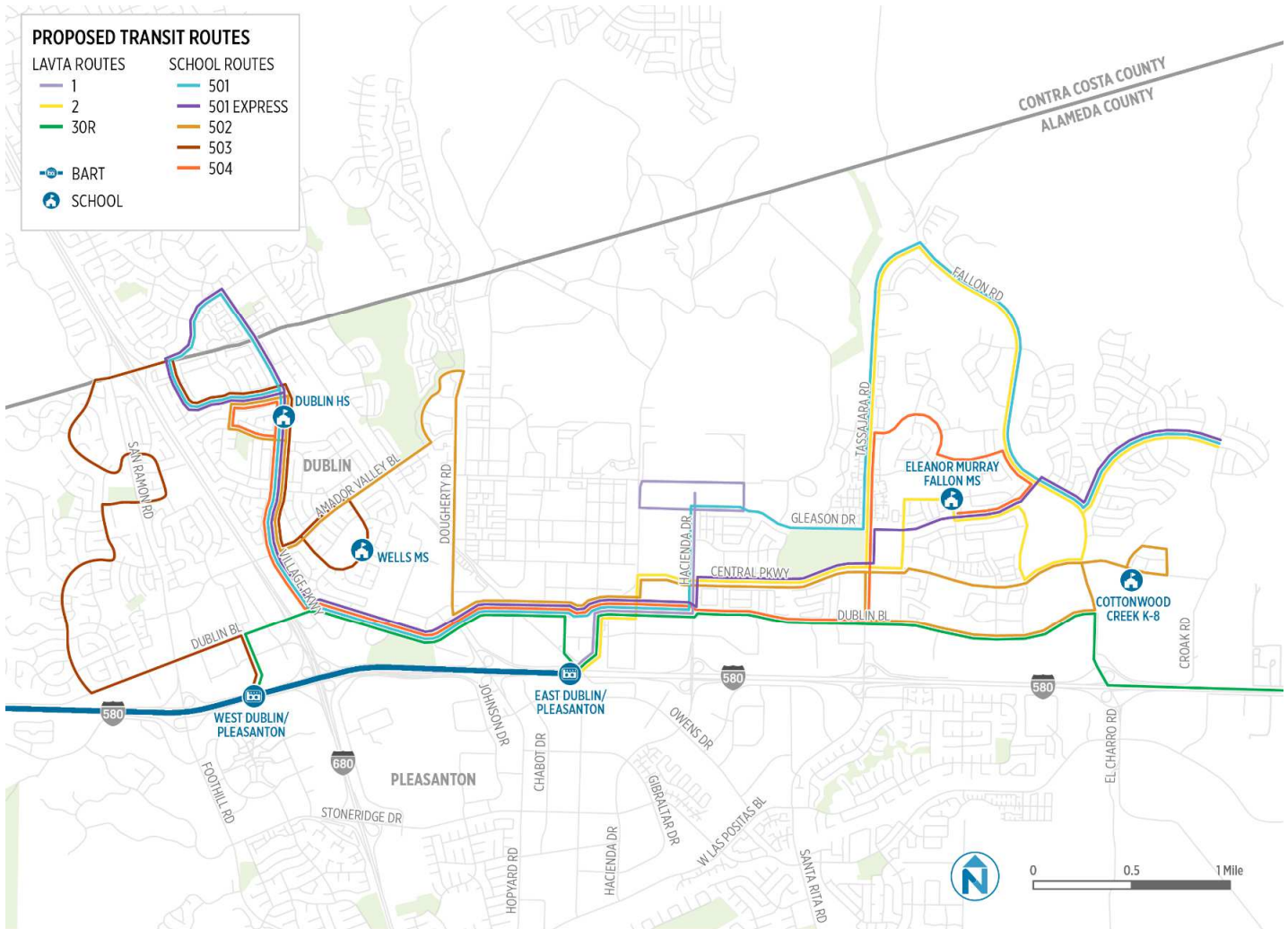
- Route 505 will cease to exist in its current state, and it will become part of Route 501 regular morning service.

Mainline Routes

For the upcoming school year, no changes are recommended at this time. The project team tried to improve Route 2 and even Route 1, but mixing a main line route with a school route is hard to do because there are different bell times on Wednesdays, but the route has a fixed and published schedule that is not officially affiliated with school bell times.

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Figure 46 Proposed Network at Start of 2018-19 School Year



Phase 2 Recommendations: School Year 2019-20 and Beyond

The following recommendations should be considered for implementation as development in Dublin continues and student enrollment climbs. These could also be considered if additional resources become available to LAVTA.

Based on the student population growth in the new Jordan Creek/Cottonwood Creek area, a third vehicle may be needed before the start of the 2019-2020 school year. LAVTA staff will monitor ridership throughout the year. Recommendations for future years are shown in Figure 47.

Figure 47 Phase 2 Recommendations

Recommendation	Route	Problem Addressed	Vehicle Change
Realign Route 501 to eliminate Tassajara and Fallon and instead serve Dublin Ranch and Gleason	501	Streamline service to populated areas	0
Reconfigure Route 504 to serve Tassajara and Fallon instead of Dublin Ranch.	504	Better serve areas in the northeast service area	0
Reconfigure for more direct service to BART	2	Inefficient loop in the middle of the route	0 or 1
Convert Route 1 to hourly after rush hour	1	Low ridership in midday	0
Add school tripper to Fallon Middle School	505	If Route 2 is reconfigured, add school tripper to Fallon from Palisades development	Possibly 1
Consider articulated buses	501, 502, 504	Reduce the need for additional buses	Up to 1
Work with the City to reinforce development patterns that enable fixed-route service	None	Current development patterns make serving students expensive and inefficient	

In Phase 2, it could be advantageous to reorient two routes to accommodate student population growth. Route 501 has enough ridership today to warrant direct service between the Positano Parkway development and the High School. By sending Route 501 straight down Gleason Drive, Route 504 could then eliminate that segment from its route, and instead capture the growing population to the north.

Appendix A Survey Graphs

Figure 48 Parents: What school will your child attend this fall?

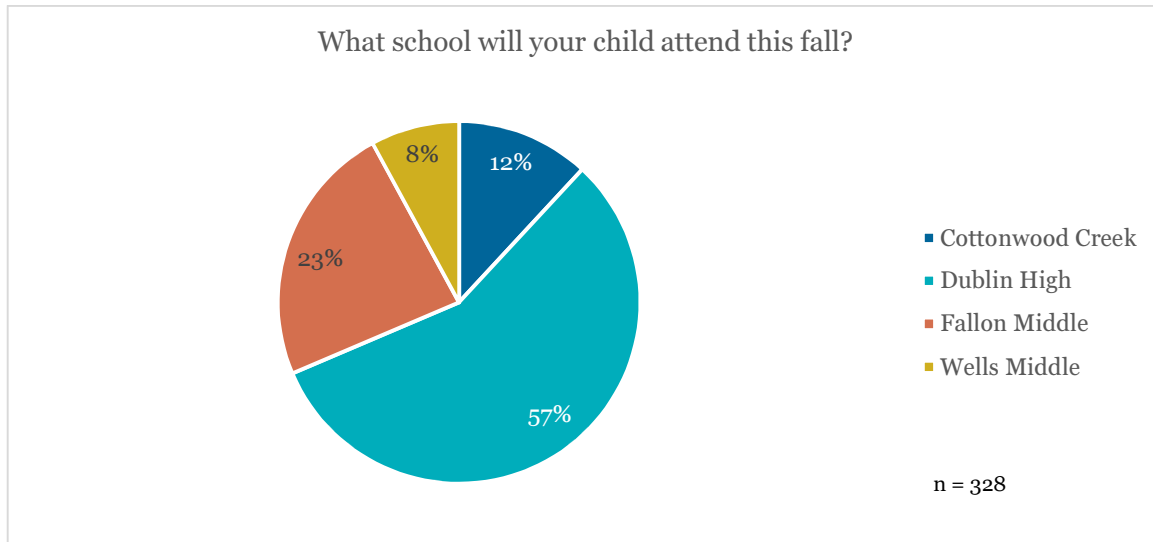


Figure 49 What grade will he/she be enrolled in for the 2018-2019 school year?

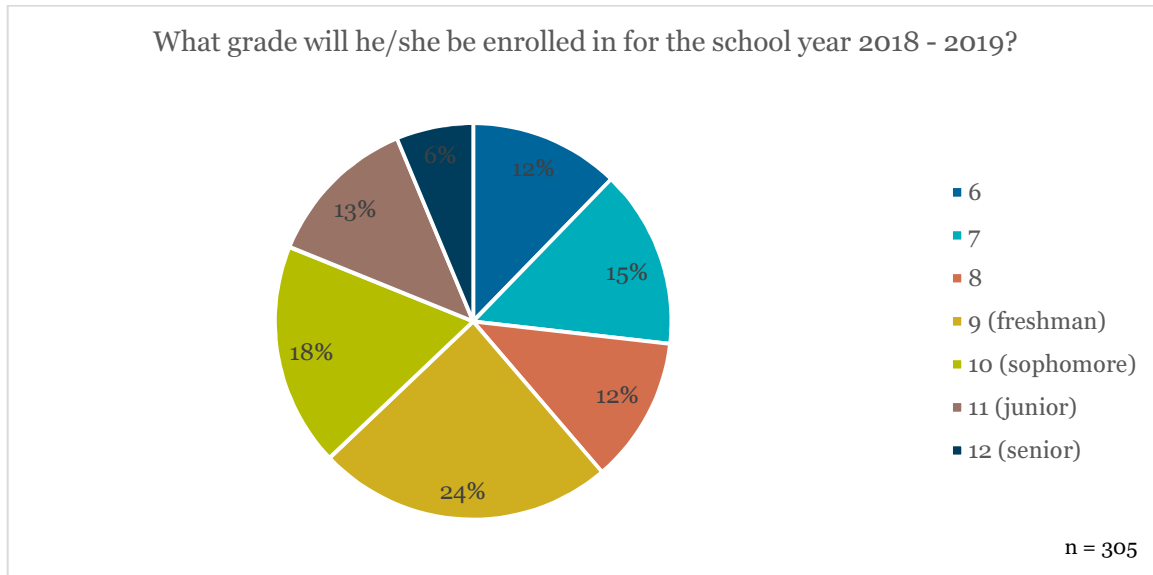


Figure 50 Importance of Wheels Bus Service to Parents

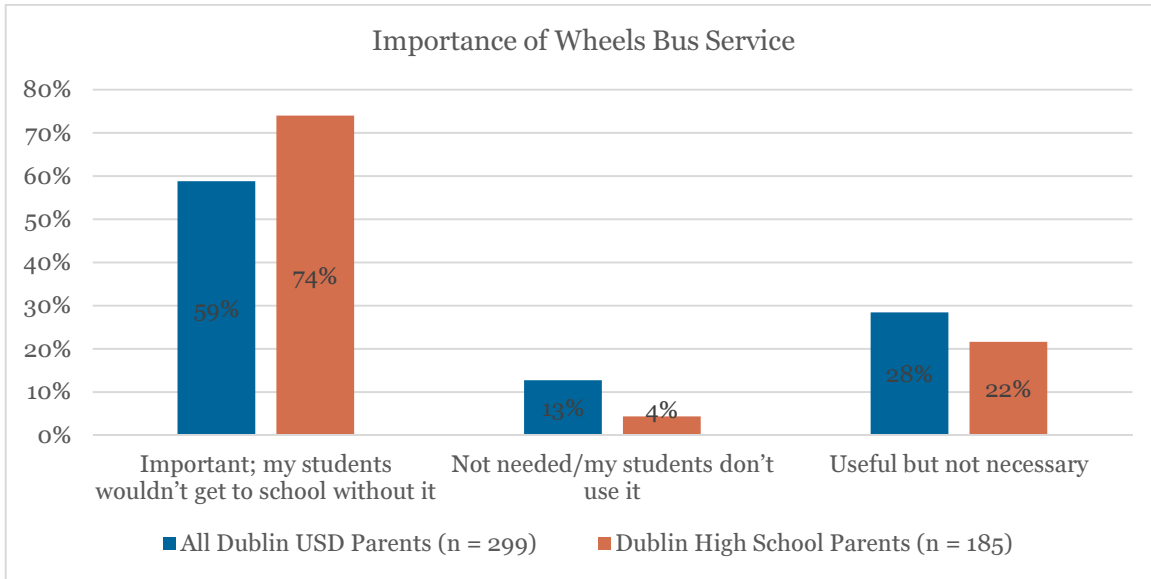


Figure 51 School Access Mode Share, Mornings

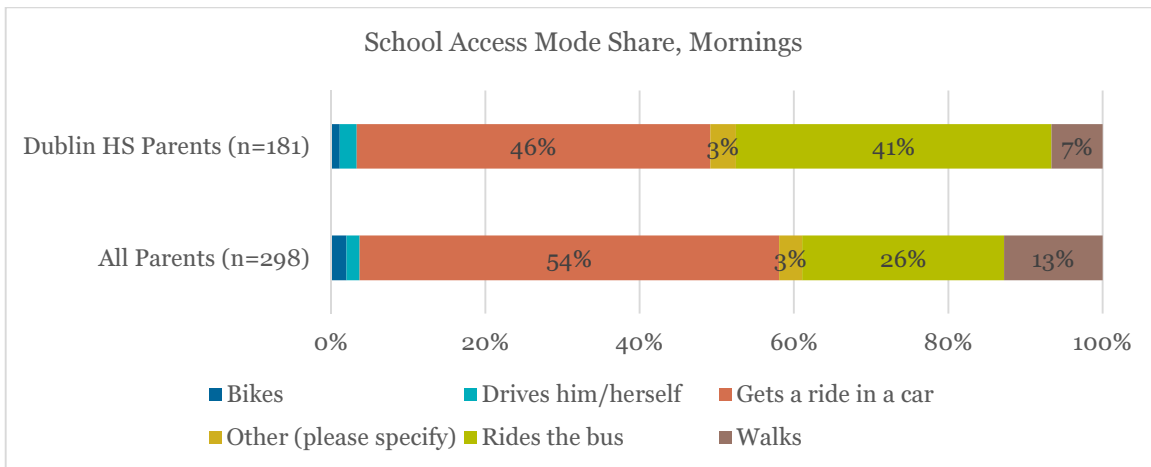


Figure 52 School Access Mode Share, Afternoons

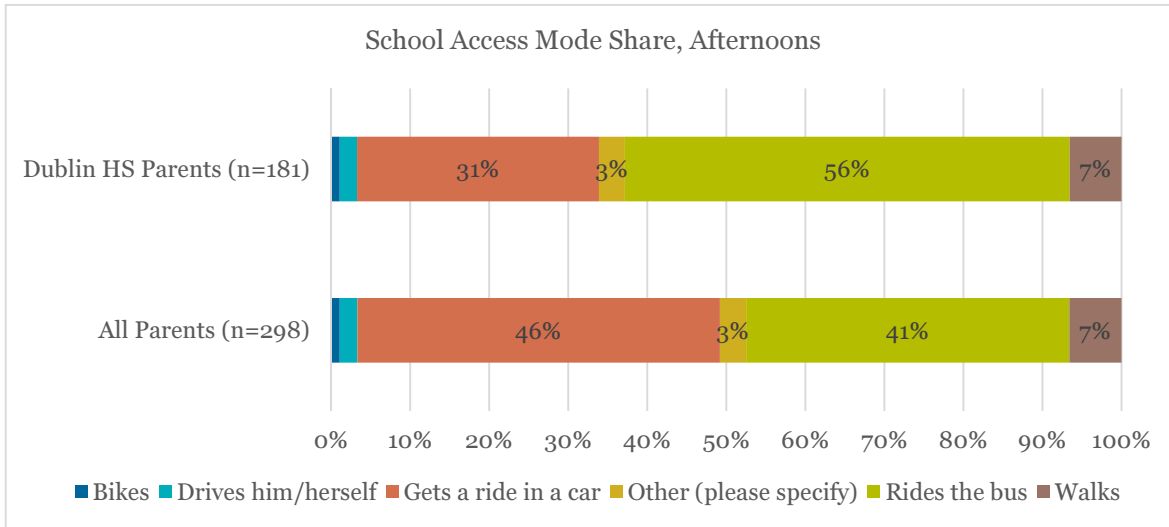


Figure 53 Which Bus Route Does Your Child Take to School?

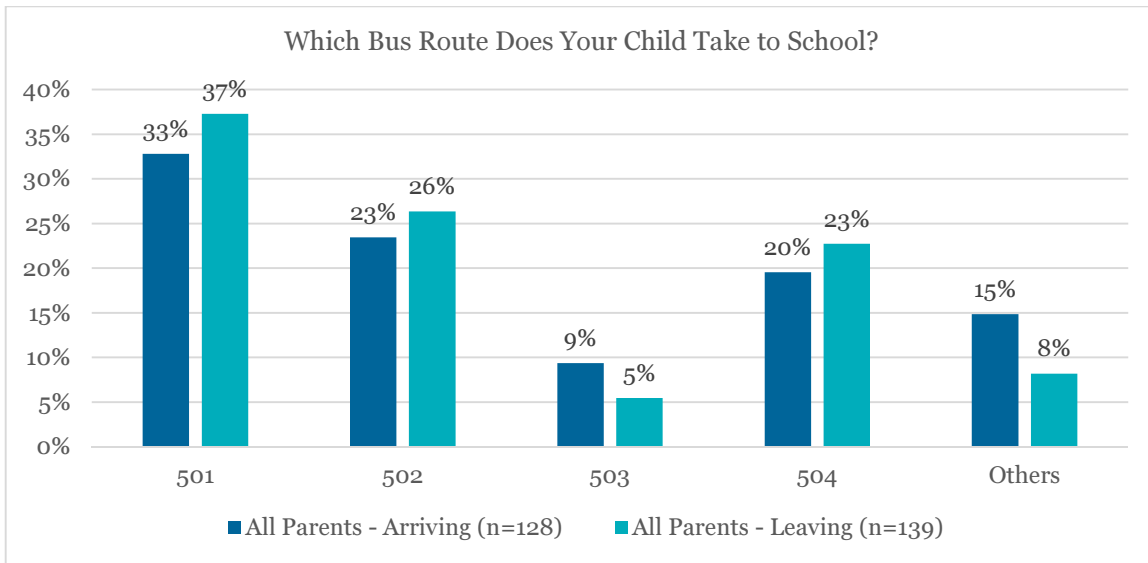


Figure 54 Which Bus route Does Your Child Take from School?

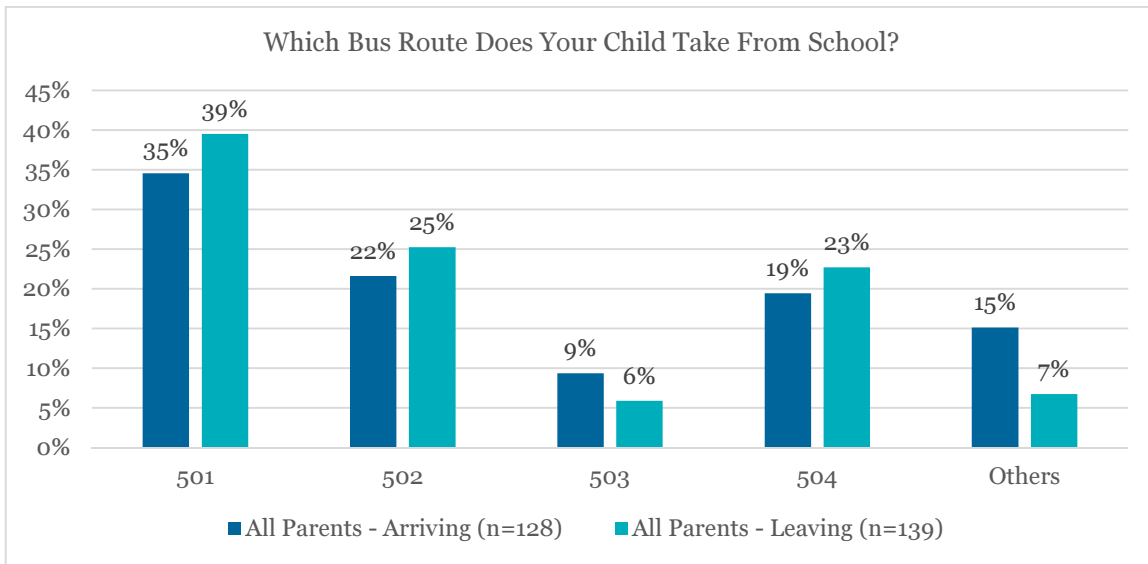
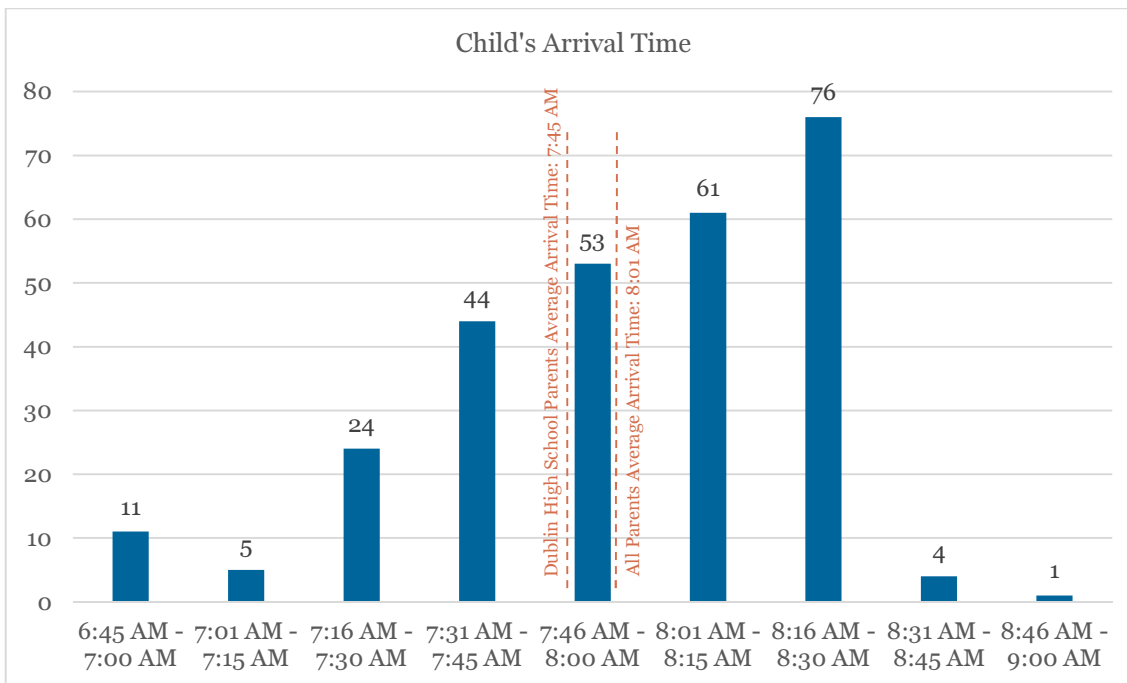


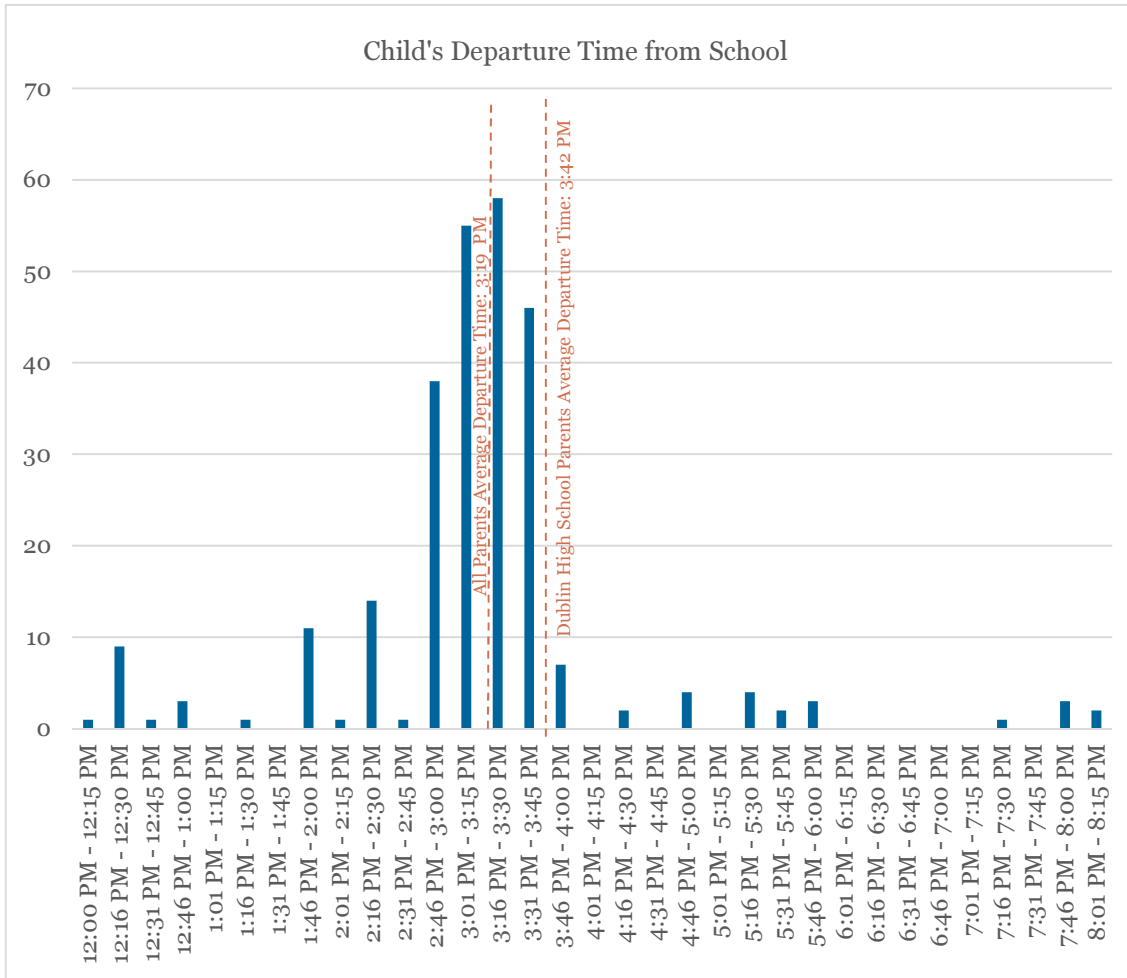
Figure 55 What Time Does Your Child Arrive to School?



All parent respondents: 286

Dublin High School parent respondents: 132

Figure 56 What Time Does Your Child Leave from School?



All parent respondents: 267

Dublin High School parent respondents: 128

Figure 57 Parent Priorities for School Transportation

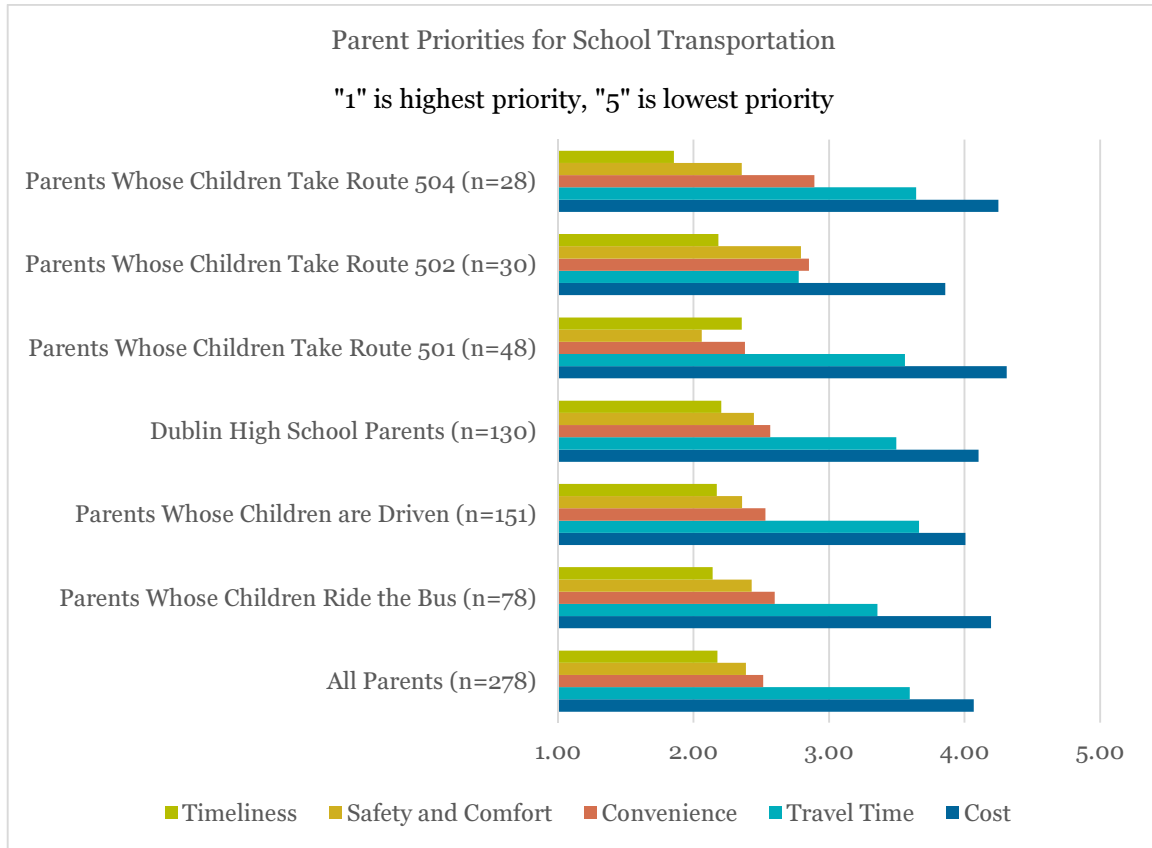


Figure 58 How often does your child ride the bus, including weekends and after school?

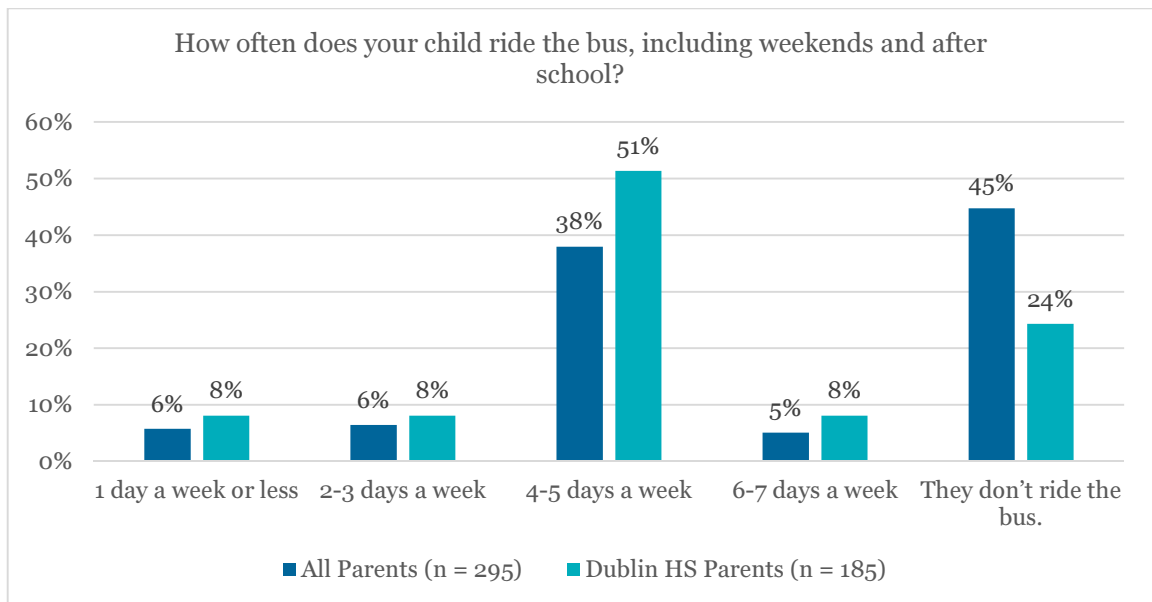
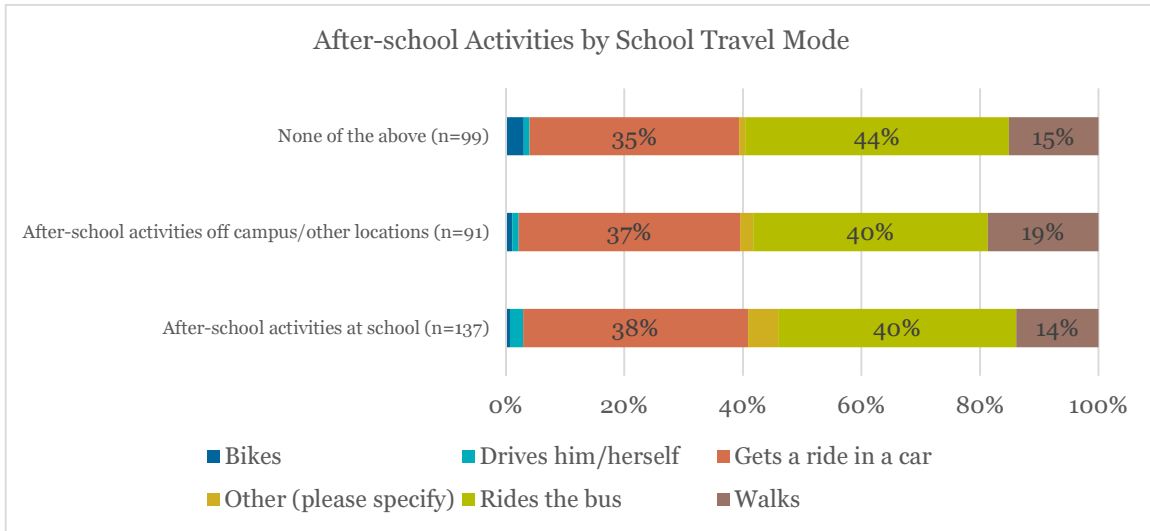
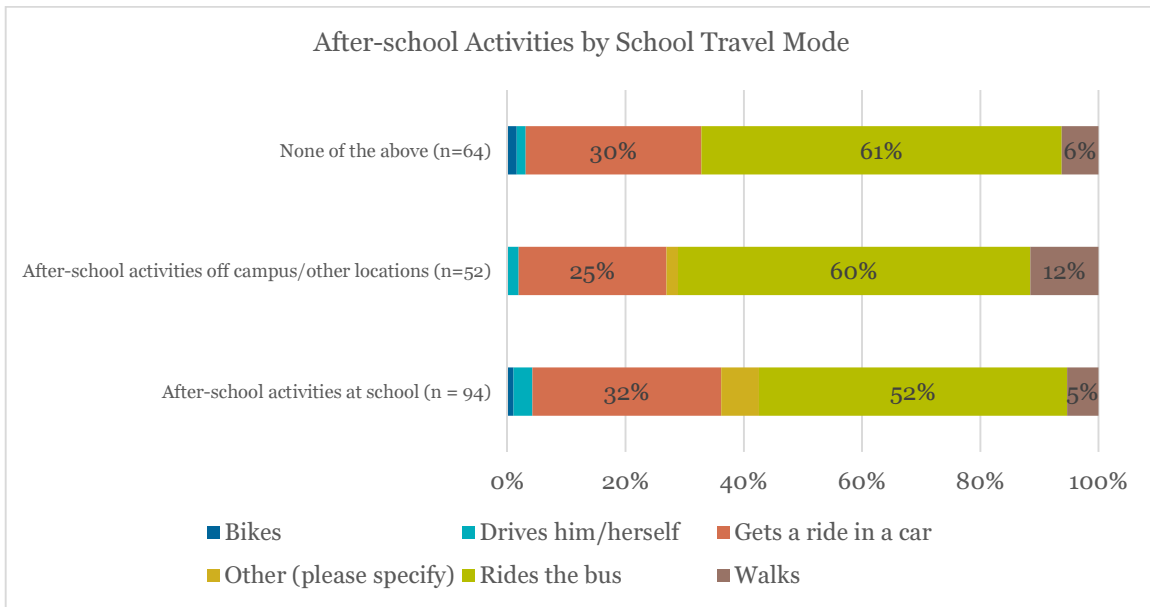


Figure 59 After-school Activities by School Travel Mode



Note: just 7 Dublin High School parents responded that their children had after-school jobs. This answer category was removed due to the small sample size.

Figure 60 Dublin High School Students: After-school Activities by School Travel Mode



Note: just 7 Dublin High School parents responded that their children had after-school jobs. This answer category was removed due to the small sample size.

Figure 61 How does your child typically pay the bus fare?

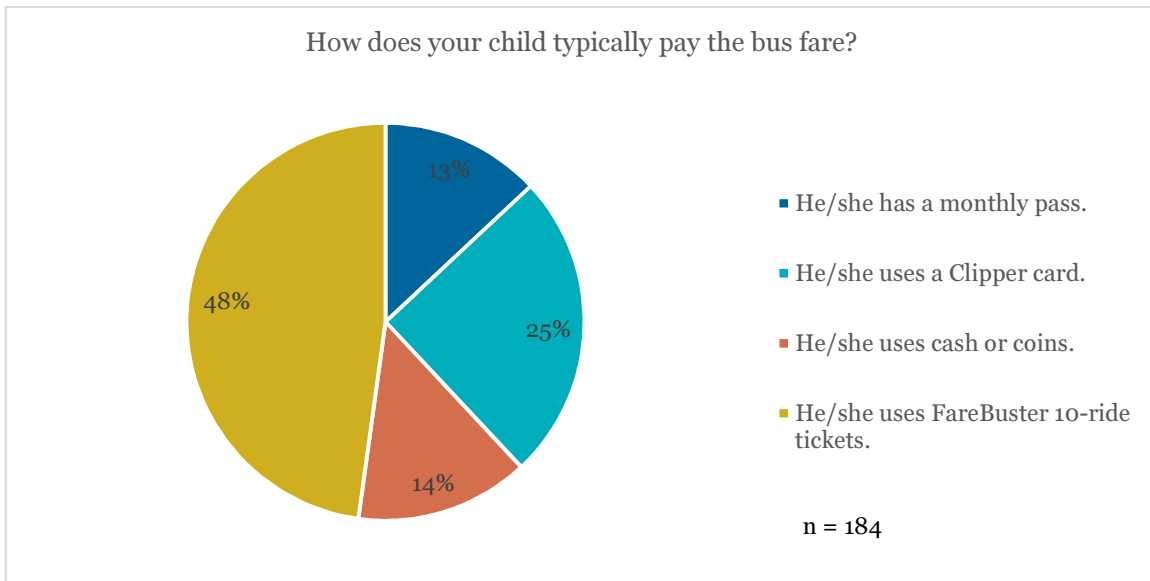


Figure 62 Value Trade-offs: Bus Stop Access

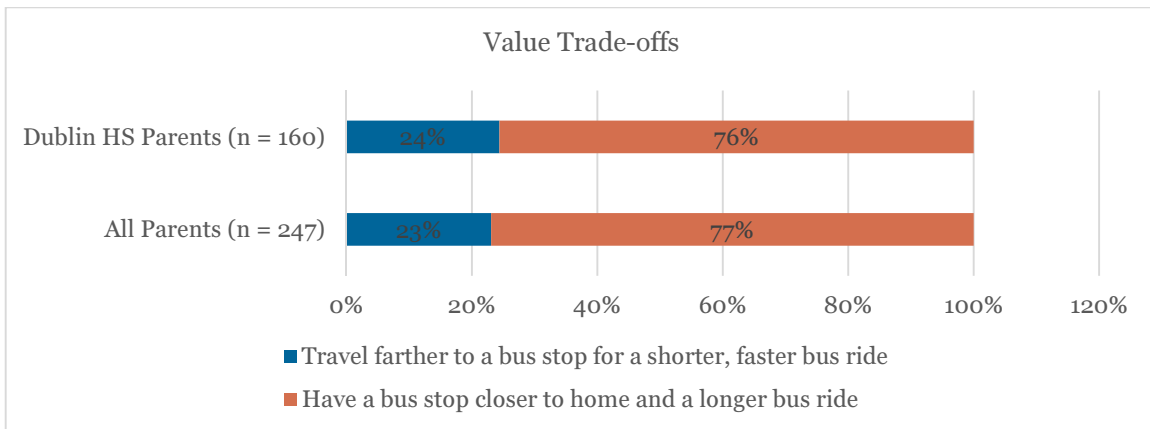
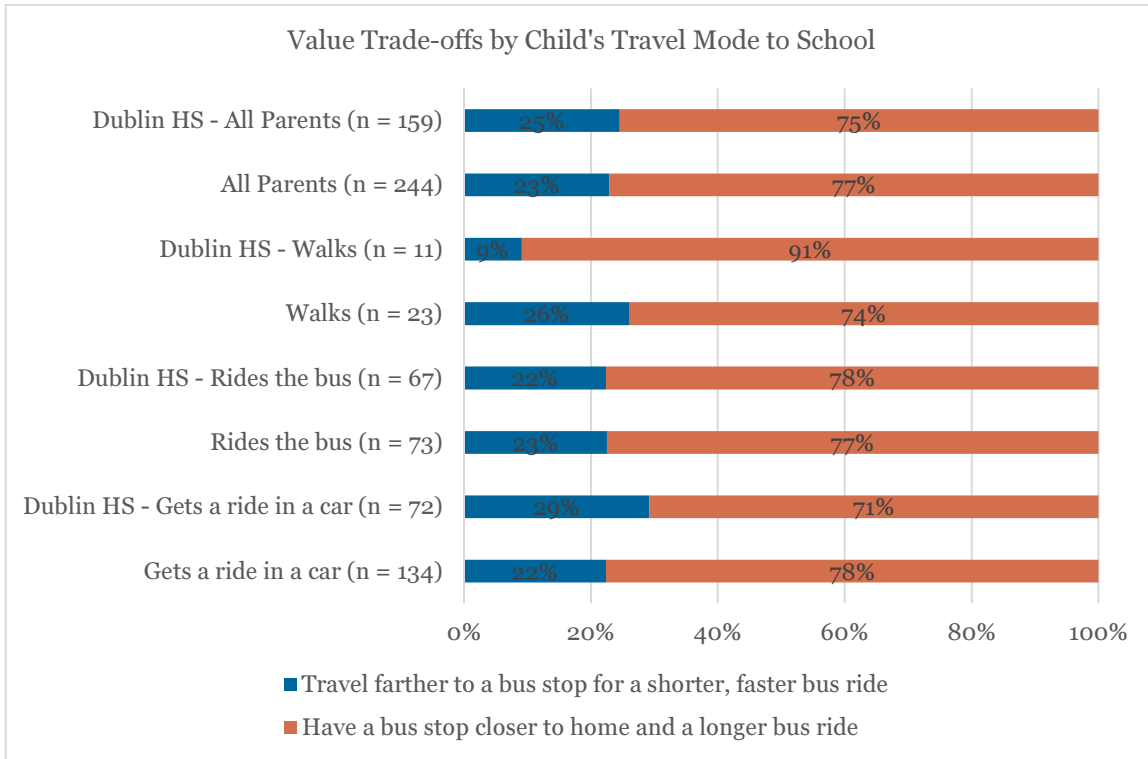
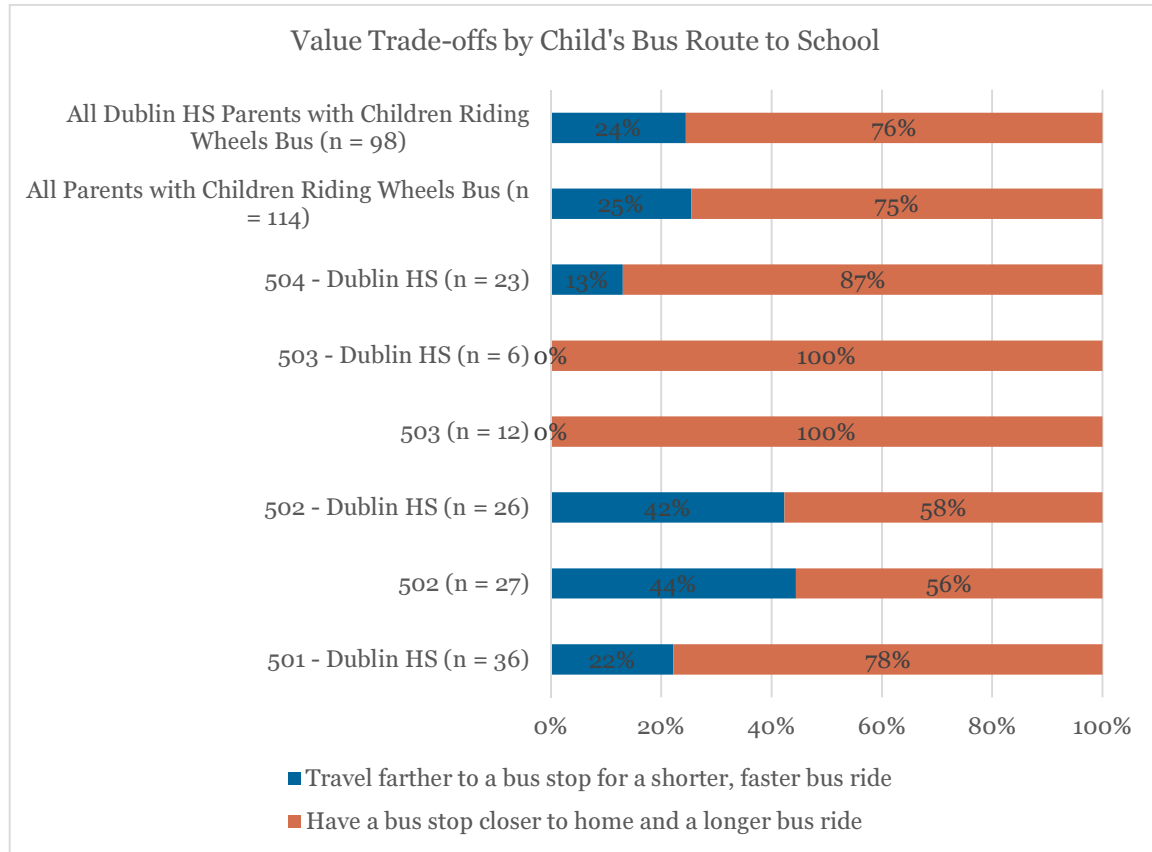


Figure 63 Value Trade-offs, Bus Stop Access, by Child's School Travel Mode



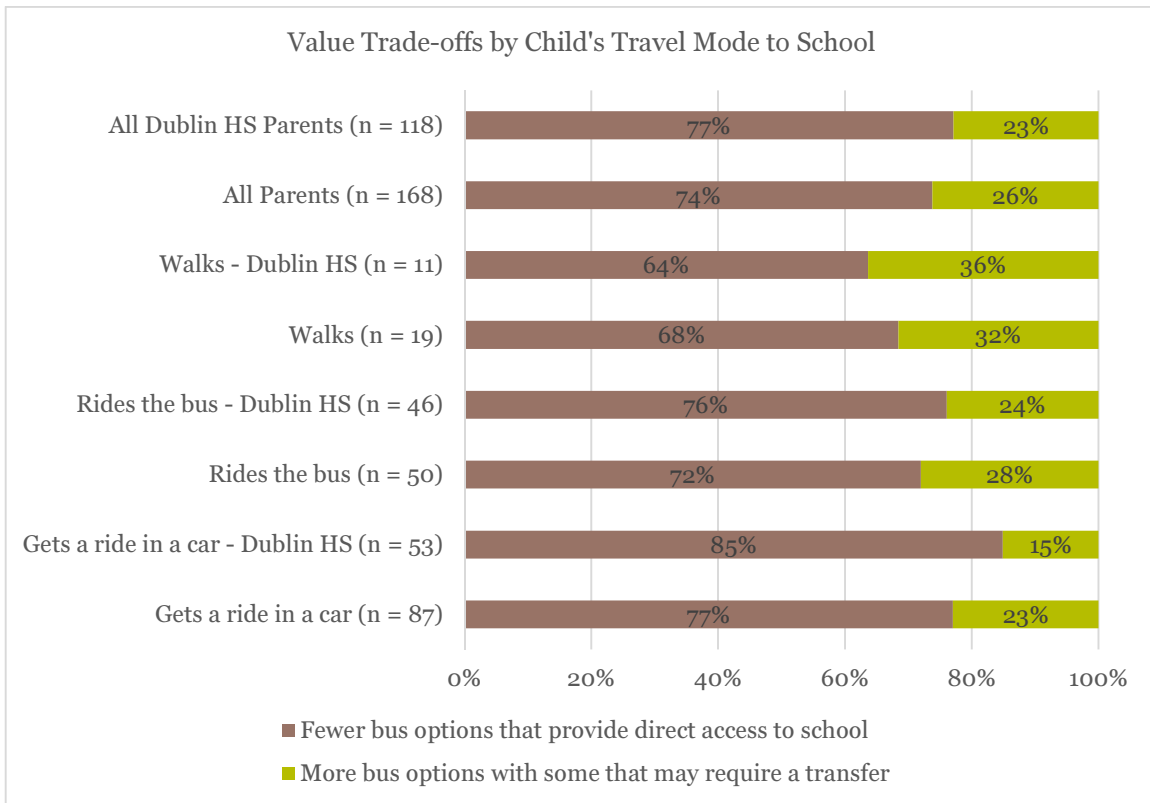
Due to small sample sizes, the following modes have been excluded from the chart above: Bikes (4 responses), Drives him/herself to school (3 responses), and Other (9 responses).

Figure 64 Value Trade-offs, Bus Stop Access, by Child's Bus Route to School



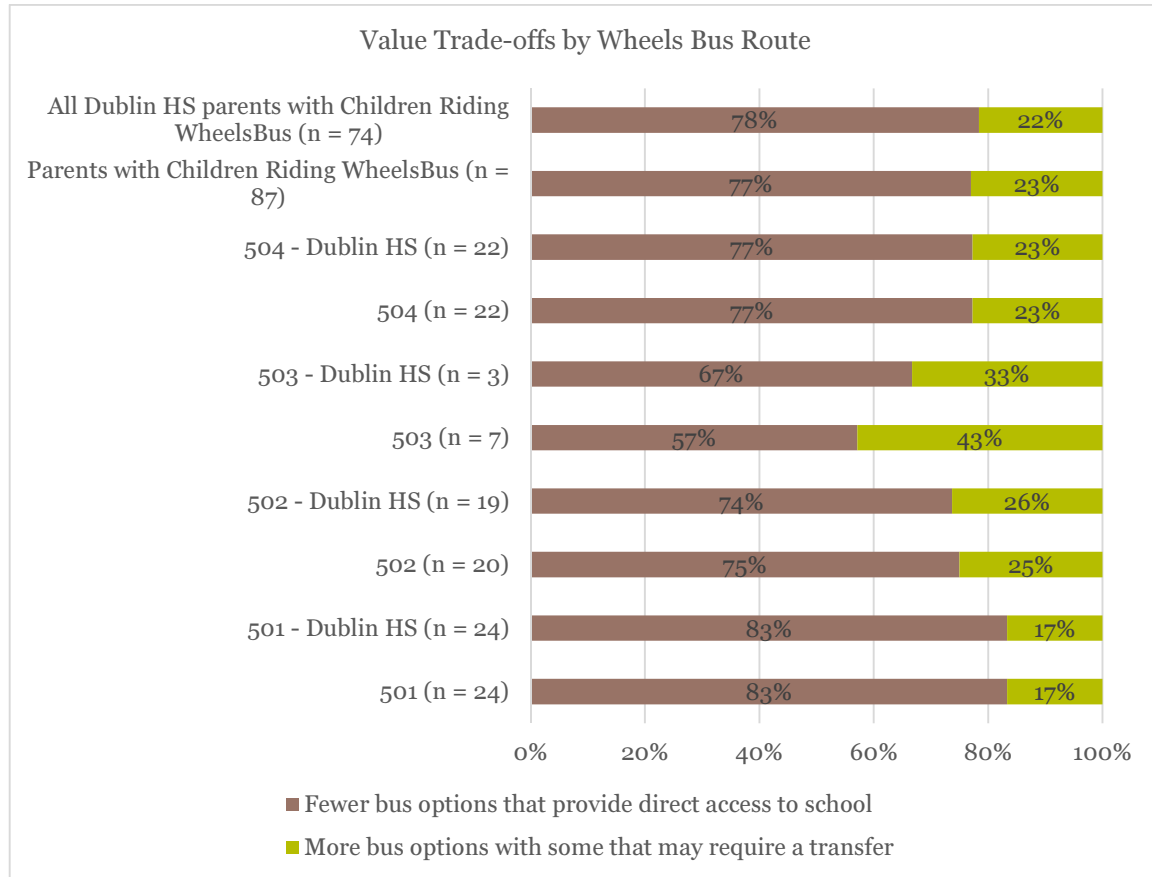
Due to small sample sizes, the following Routes were omitted from the chart above: Route 2 (8 responses), and Route 30R (4 responses). All respondents whose arrive to school via Route 501 and Route 504 are parents of Dublin High School students.

Figure 65 Value Trade-offs, Access to School, by Child's School Travel Mode



Due to small sample sizes, the following response categories were removed from the chart above: Bikes (3 responses), Drives him/herself (2 responses), and Other (7 responses).

Figure 66 Value Trade-offs, Access to School, by Child's Bus Route to School



Due to small sample sizes, the following routes were removed from the chart above: Route 1 (1 response), Route 2 (7 responses), Route 30R (4 responses), and Other (2 responses).

Figure 67 Parent Value Trade-offs: Access to School

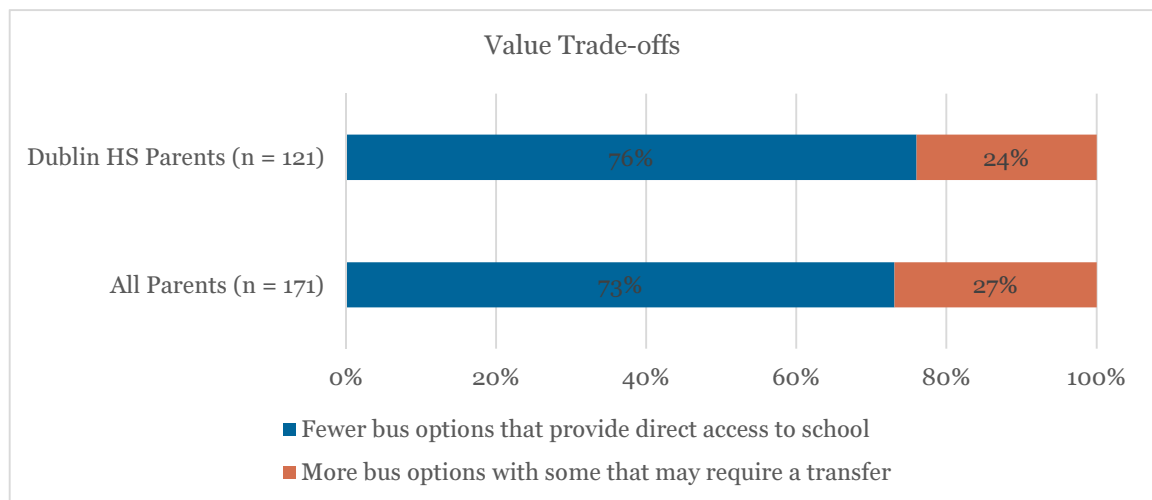
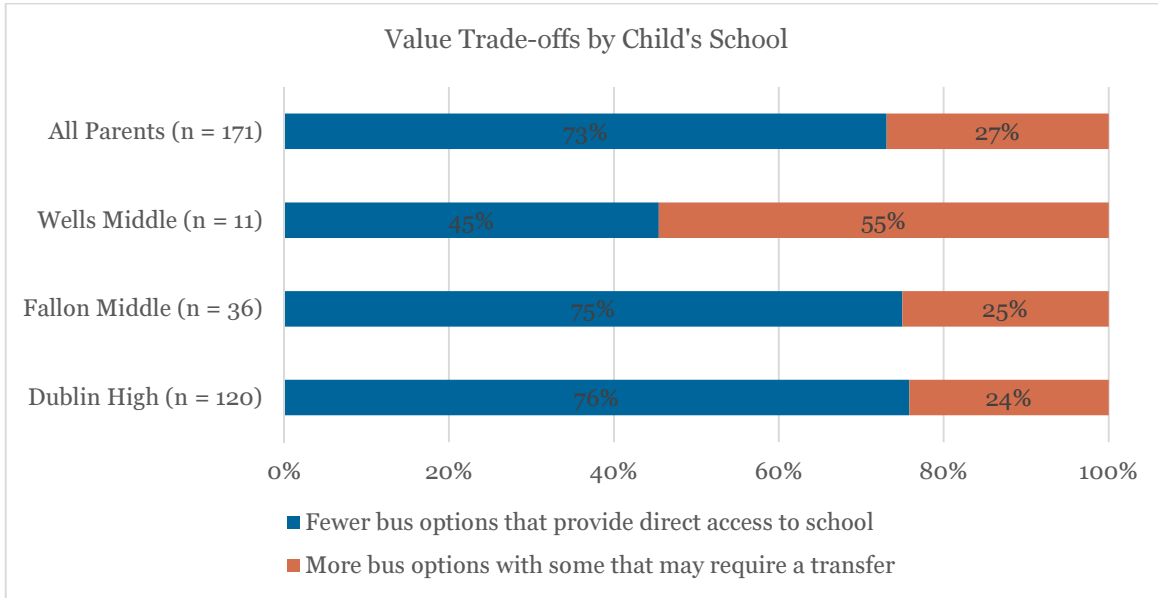


Figure 68 Value Trade-offs, Access to School, by Child's School of Attendance



Just 4 responses were received from parents whose children attend Cottonwood Creek School. These results have been hidden from the chart above due to the small sample size.

Figure 69 Student Perceptions of Wheels Bus Service

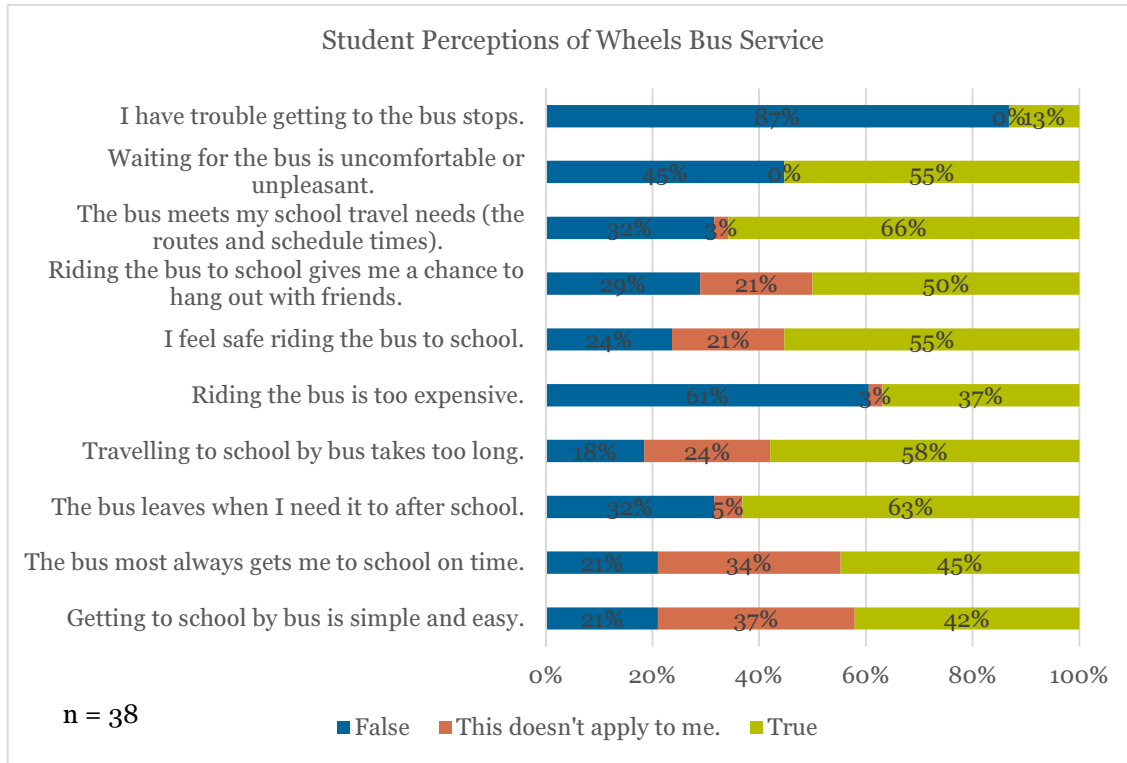


Figure 70 Student Value Trade-offs: Bus Stop Access

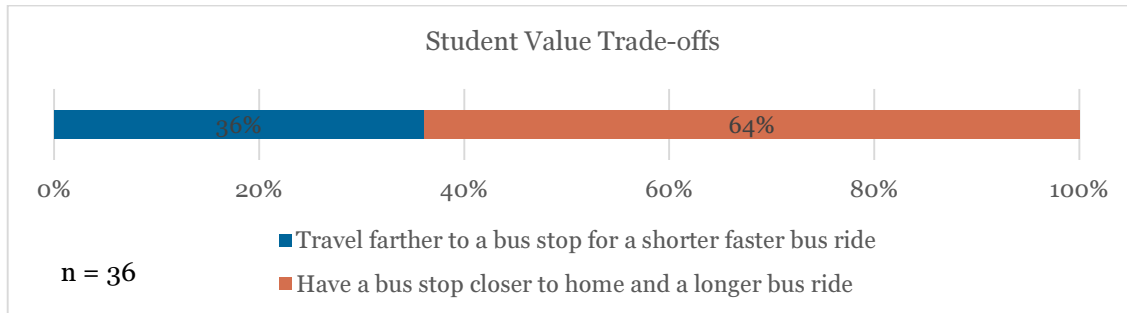


Figure 71 Student Value Trade-offs: Access to School

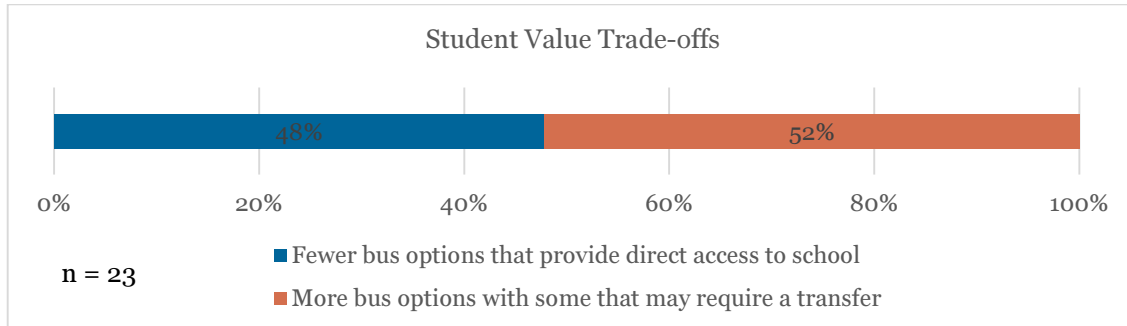


Figure 72 Importance of Wheels Bus Service to Students

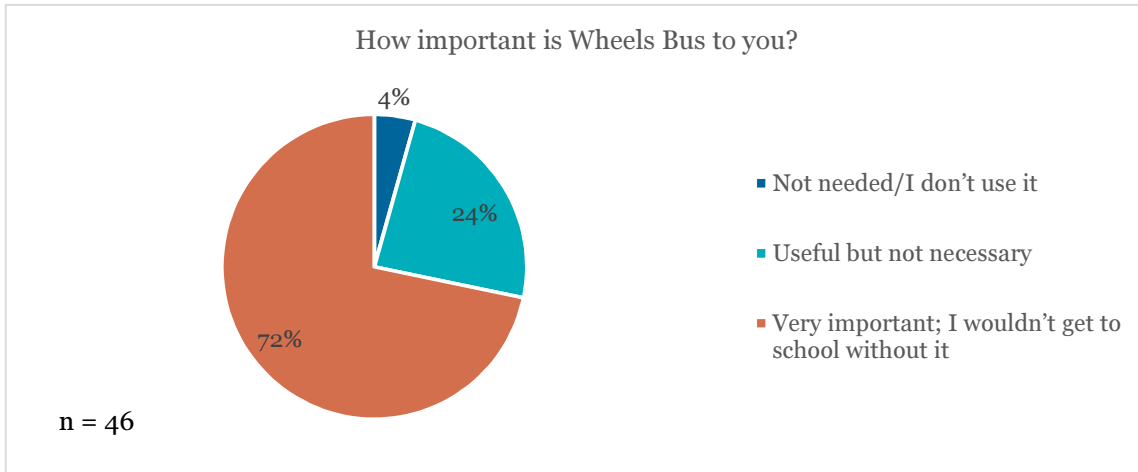


Figure 73 Student Self-reported School Mode Share

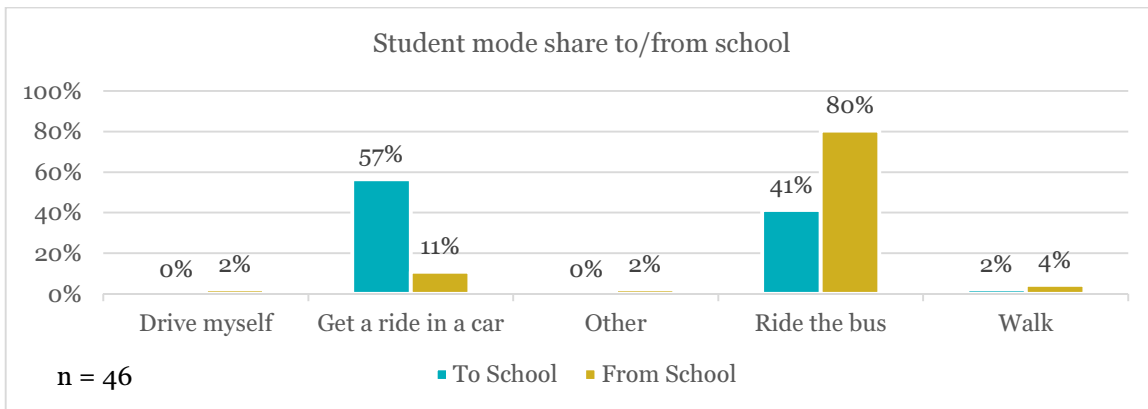


Figure 74 Faculty/Staff Priorities for School Transportation

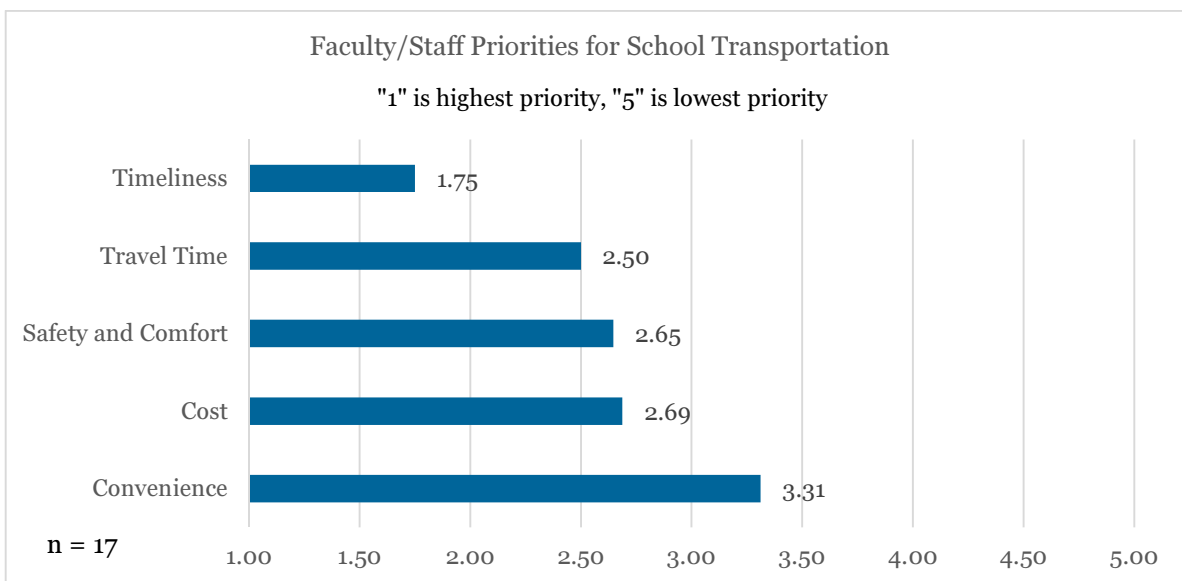


Figure 75 Faculty/Staff: Importance of Wheels Bus Service to Students

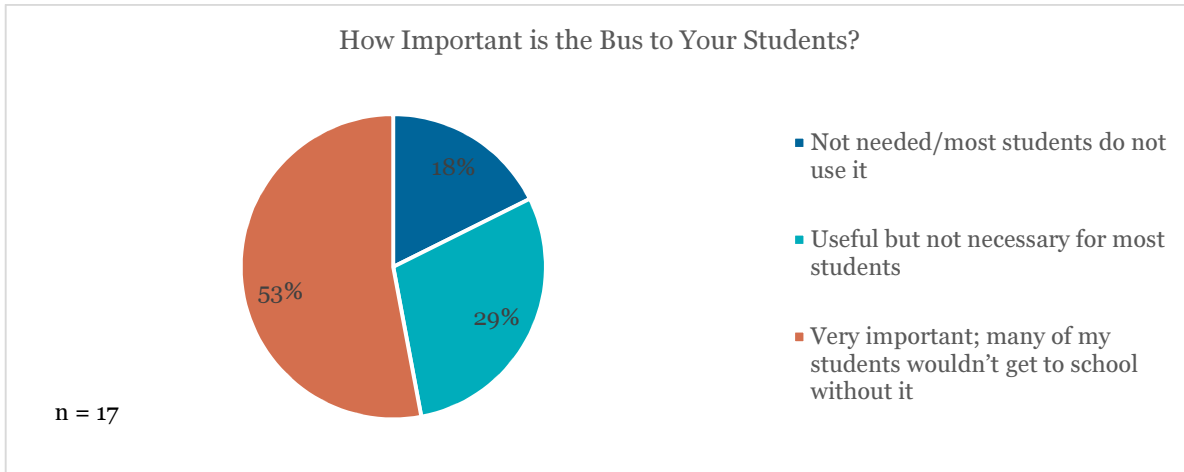
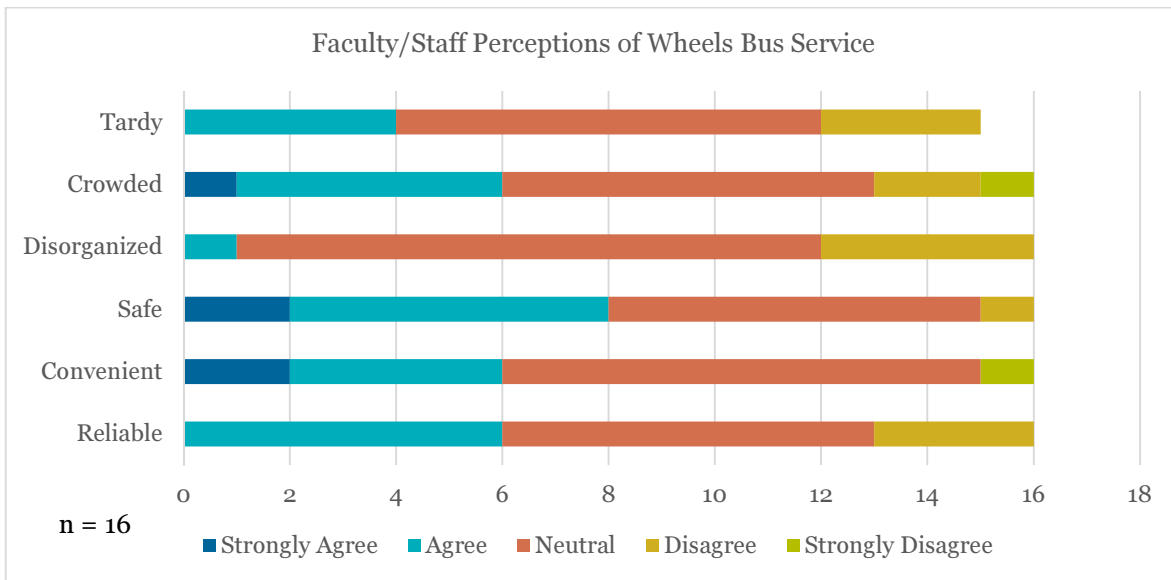


Figure 76 Faculty/Staff Perceptions of Wheels Bus Service



OPEN-ENDED TEXT COMMENTS