Appendix A
Route Profiles

Table of Contents

INTRODUCTION

Major Corridors are those routes with the strongest existing transit markets. Appendix A includes detailed route profiles for 17 Major Corridors. These profiles help to provide a better understanding of the strengths and weaknesses of existing services, identifying opportunities for future transit investments. This introduction describes the contents, data sources, and purpose of each section of the route profiles.

SERVICE PATTERNS

A transit service pattern is the term used to describe how a bus or train serves the stops along the route (e.g., serving every stop or skipping some stops). Based on the October 2016 service change, this section describes both weekday and weekend service patterns.

SPAN AND FREQUENCY

Span is the length of time a transit service operates during a 24-hour period, and frequency is how often the bus or train arrives. Service span and frequency impact the availability and convenience of transit service. This section depicts the relationship between frequency (in terms of buses per hour) and ridership by time of day. Frequency and span data are based on the October 2016 service change; ridership data is from fiscal year 2016. In some cases, ridership data may not reflect recent service level changes, and this is noted in the text.

RIDERSHIP

Each profile contains a map of weekday ridership—the number of people boarding the transit service—at each stop based on March 2016 data. Profiles include a discussion of ridership and productivity levels compared to other routes, as well as notable patterns in the ridership map.

PERFORMANCE

This section reports five performance indicators for weekdays, Saturdays, and Sundays based on fiscal year 2016 data.

- **Daily boardings** measure of the number of people boarding a route on a daily basis.
- **Revenue hours** measure the amount of daily transit service a route provides.
- **Productivity**, defined as the ratio of daily boardings to revenue hours, indicates the effectiveness of service in terms of the number of boardings that occur within one hour of service on average.
- **Farebox recovery** is the percentage of operating costs recovered through passenger fares.
- **On-time performance** measures the percent of trips that arrive on-time at scheduled points.

SERVICE DESIGN

Five service design indicators are reported based on the October 2016 service change.

- **Stops per mile** reports the average stop spacing on a route (i.e., the distance between stops); stop spacing impacts both trip speed and how far an average rider walks to reach a stop.
- **Average speed** impacts travel time.
- **Peak headway** is the most frequent service level operated on any portion of the corridor.
- **Off-peak and Saturday service levels** are rated to indicate service quality outside peak times. While demand is often highest during rush hour, off-peak frequency impacts the availability and quality of service for nontraditional work schedules and other types of trips, such as shopping and recreational trips.
  - <15 min = excellent
  - 16-29 min = good
  - 30 min = fair
  - >30 min = poor

STRENGTHS AND WEAKNESSES

These sections synthesize the characteristics and indicators reported in the profile, summarizing the strengths and weaknesses of a corridor as a whole.

ROUTE PROFILES

This section presents route profiles for the following routes:

- Route 26 Fullerton – Placentia
- Route 29 La Habra – Huntington Beach
- Route 37 La Habra – Fountain Valley
- Route 38 Lakewood – Anaheim Hills
- Route 42 Seal Beach – Orange
- Route 47 Fullerton – Balboa
- Route 50 Long Beach – Orange
- Route 53 Anaheim – Irvine
- Route 54 Garden Grove – Orange
- Route 55 Santa Ana – Newport Beach
- Route 57 Brea – Newport Beach
- Route 64 Huntington Beach – Tustin
- Route 66 Huntington Beach – Irvine
- Route 70 Sunset Beach – Tustin
- Route 83 Anaheim – Laguna Hills
- Route 43/543 Fullerton/Santa Ana – Costa Mesa
- Route 60/560 Long Beach – Tustin/Santa Ana – Long Beach

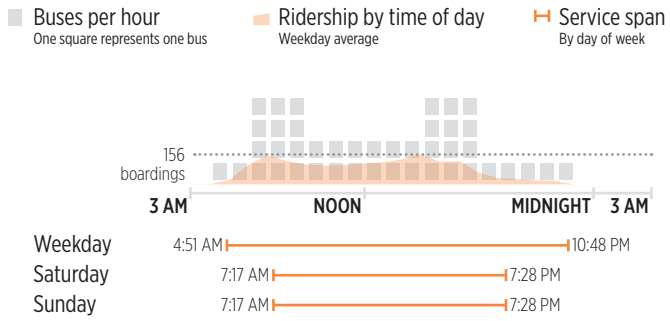
FULLERTON TO PLACENTIA VIA COMMONWEALTH AVE/YORBA LINDA AVE

26

Service Patterns

Route 26 operates all day 30-minute service between the Fullerton Park-and-Ride and Rose Drive/Yorba Linda Avenue in Placentia. During peak periods Route 26 operates a short-line pattern between Fullerton Park-and-Ride and Cal State Fullerton, providing 15 minute service in that segment.

Span and Frequency



Ridership

In October 2016 Route 26 was truncated at Rose Avenue and began operating 15 minute peak service. Ridership data does not reflect these changes. However, ridership trends prior to the service change show increased demand at peak times, indicating warrants for the newly implemented service. Cal State Fullerton and the Fullerton Transportation Center are the major ridership generators on Route 26.

Performance

Indicator	Weekday	Saturday	Sunday
Daily Boardings	1,621	644	516
Revenue Hours	60	32	31
Productivity	27.1	20.4	16.5
Farebox Recovery	38.8%	28.4%	22.0%
On-Time Performance	86.4%	66.5%	76.7%

Service Design

Stops per Mile	Average Speed (MPH)	Peak Headway	Off-Peak Service Levels	Saturday Service Levels
4.8	12.68	15	Fair	Poor

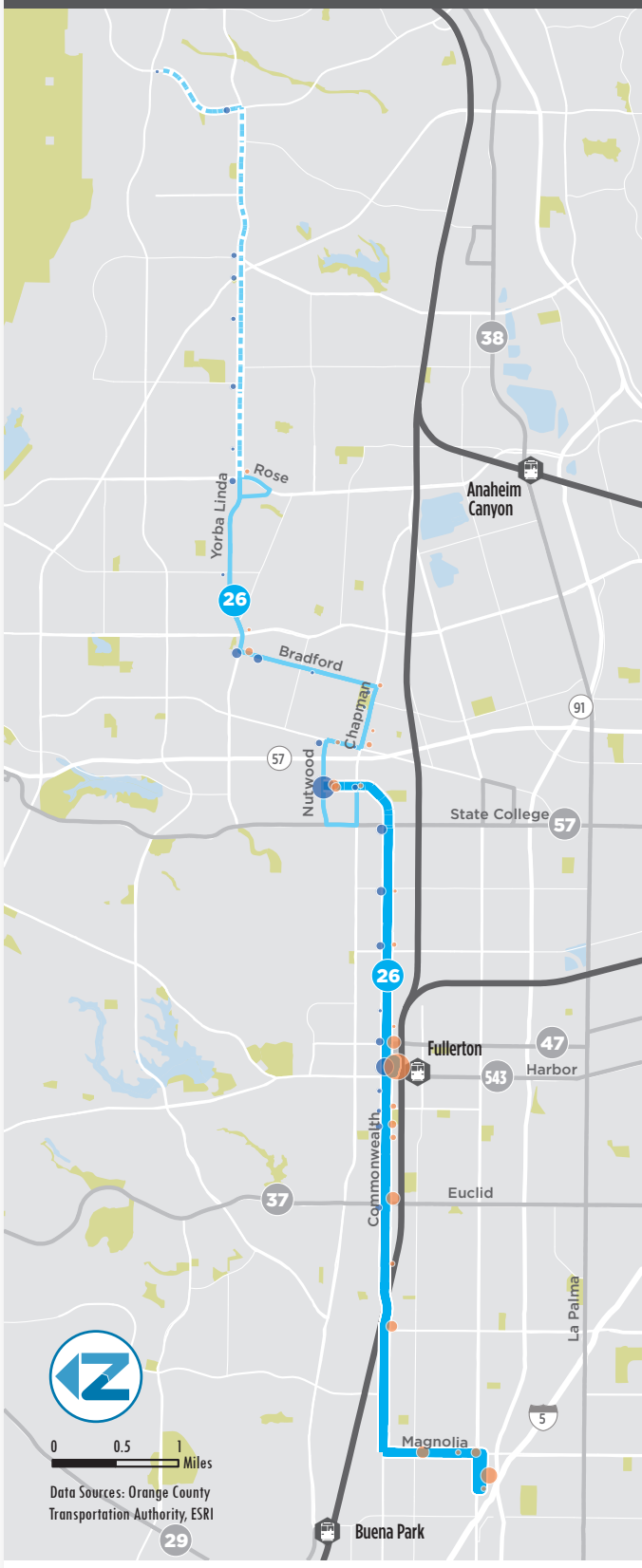
Strengths

Route 26 has the second highest farebox recovery of any Major Corridor, with almost 40% of operating costs recovered through passenger fares. With Cal-State Fullerton, a commuter-oriented market, being the primary ridership generator, recent changes to peak service levels may have a positive impact on ridership.

Weaknesses

Compared to other Major Corridors, Route 26 has the lowest average weekday ridership, more comparable to local routes. In addition, ridership levels reduce by more than half on Saturdays and by two-thirds on Sundays compared to Weekday ridership levels. Service levels are also significantly reduced at off-peak times, which, despite recent improvements to peak frequency, will not improve the all-day ridership market.

Route 26 Weekday Boardings



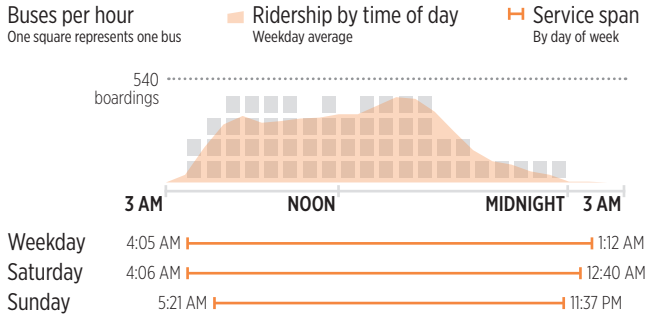
LA HABRA – HUNTINGTON BEACH VIA BEACH BOULEVARD

29

Service Patterns

Route 29 operates two service patterns which alternate every trip. Half of trips terminate at the Buena Park Metrolink Station and half terminate at La Habra Boulevard and do not serve Buena Park Metrolink. The segment between PCH/1st and Beach/Malvern has 15-minute service during morning and afternoon peak periods on weekdays and 18-minute service on weekends.

Span and Frequency



Ridership

Route 29 carries 6,403 passengers per weekday on average. The strongest ridership segment is between McFadden Avenue and Lincoln Avenue, with many stops generating more than 100 riders per day. In the southbound direction the stop at Beach/Lincoln, which provides transfers to Route 42, generates 241 per weekday on average, more than any other stop. Segments north of Malvern Avenue, which are only served on half of trips, generate less ridership, with only the stop at Beach/Imperial generating more than 50 riders per weekday.

Performance

Indicator	Weekday	Saturday	Sunday
Daily Boardings	6,403	5,092	4,127
Revenue Hours	203	180	158
Productivity	31.6	28.2	26.0
Farebox Recovery	23.5%	20.3%	18.3%
On-Time Performance	86.7%	85.9%	86.4%

Service Design

Stops per Mile	Average Speed (MPH)	Peak Headway	Off-Peak Service Levels	Saturday Service Levels
3.8	13.28	15	Good	Good

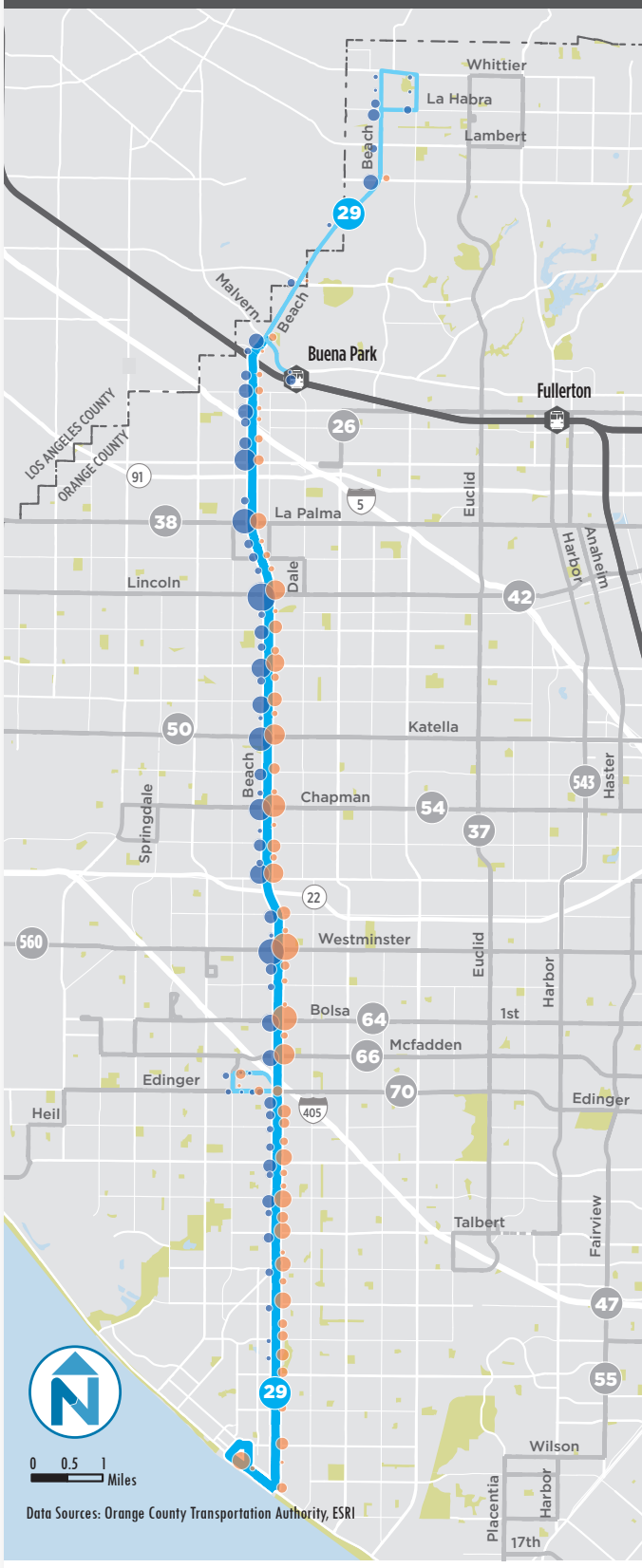
Strengths

Weekday ridership is above the Major Corridor group average. Compared to all other Major Corridors, Route 29 has the highest ratio of Saturday to Weekday ridership, 80%, which is supported by the high level of weekend service. Strong Saturday ridership indicates a diverse mix of rider types and trip purposes.

Weaknesses

After 6:00 p.m. on weekdays ridership declines precipitously along with service levels. While it is typical for demand to decline in the evenings, the drop from 15-minute to 60-minute by 8:00 p.m. service may make service inconvenient for riders returning from retail or service industry shifts that end later in the day. Farebox recovery is in the bottom third of the Major Corridors.

Route 29 Weekday Boardings



Average Daily Boardings by Bus Stop, March 2016*

Northbound Southbound

10

50

100

(proportionately sized)

*for stops with five or more average daily boardings

Transit

Major Bus Routes

Frequent Service (Every 15 minutes)

Less Frequent Service

No Longer in Service

Other Major Route

Metrolink

Station/Line

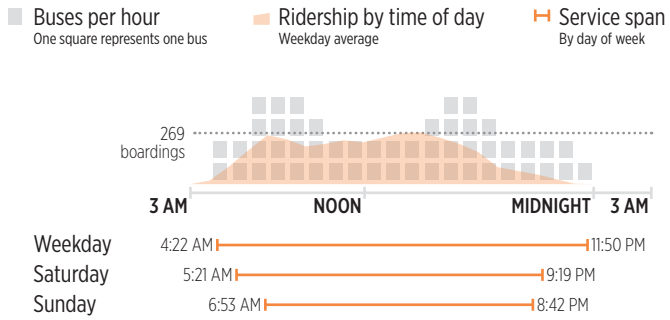
LA HABRA TO FOUNTAIN VALLEY VIA EUCLID STREET

37

Service Patterns

Route 37 operates one consistent route pattern at all times, with 15 minute peak and 30 minute off-peak service on weekdays. Weekend service operates every 60 minutes.

Span and Frequency



Ridership

As of October 2016 Route 37 doubled peak service levels from 30 minutes to 15 minutes and increased midday service from 40-minutes to 30 minutes. Ridership data does not reflect these changes. Ridership is strongest between La Palma Avenue and Westminster Avenue. The stop at Euclid/Ball generates the most ridership, providing transfers to Route 46 and serving Gilbert High School and Loara High School. Ridership is highest at peak times, with the afternoon peak in ridership occuring between 2:00 p.m. and 3:00 p.m., potentially driven by school bell times.

Performance

Indicator	Weekday	Saturday	Sunday
Daily Boardings	3,262	1,669	1,031
Revenue Hours	92	63	37
Productivity	35.3	26.7	27.5
Farebox Recovery	26.2%	19.7%	20.1%
On-Time Performance	84.3%	79.6%	85.0%

Service Design

Stops per Mile	Average Speed (MPH)	Peak Headway	Off-Peak Service Levels	Saturday Service Levels
4.1	14.61	15	Fair	Poor

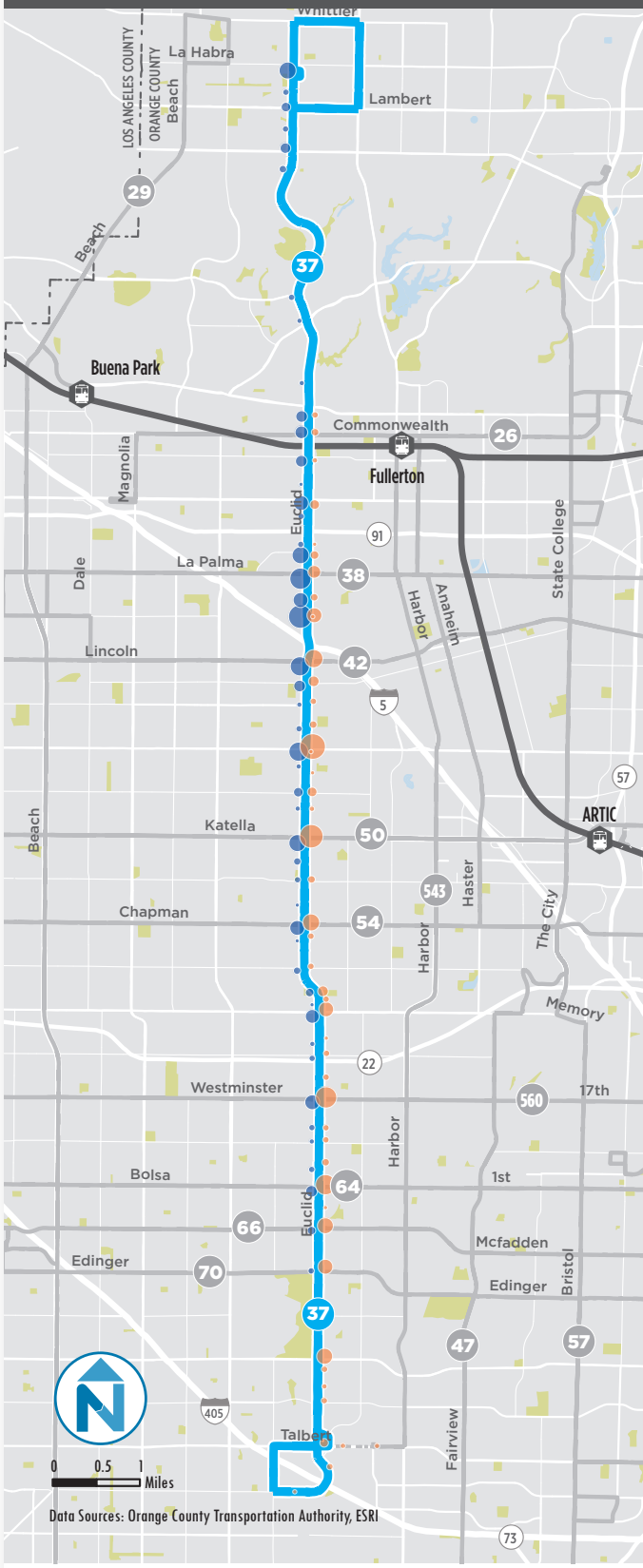
Strengths

Route 37 is one of the most productive Major Corridors, carrying more than 35 boardings per hour. This level of productivity supports the recent improvements to peak frequency. In addition Route 37 has the 4th fastest average speed of all Major Corridors.

Weaknesses

Overall weekday ridership on Route 37 is third lowest of the Major Corridors, which can partially be explained by its shorter length and lower service levels prior to October 2016. Off-peak service levels remain low and do not support an all-day market for transit. Despite operating a faster average speed, Route 37 On-Time Performance is below average for a Major Corridor.

Route 37 Weekday Boardings



Average Daily Boardings by Bus Stop, March 2016*

Northbound Southbound

10

50

100

(proportionately sized)

*for stops with five or more average daily boardings

Transit

Major Bus Routes

- Frequent Service (Every 15 minutes)
- Less Frequent Service
- No Longer in Service
- Other Major Route

Metrolink

- Station/Line

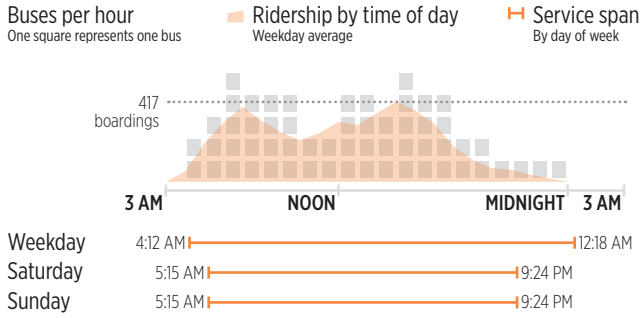
LAKEWOOD TO ANAHEIM HILLS VIA DEL AMO BLVD/LA PALMA AVE

38

Service Patterns

Route 38 operates six service patterns total, though the majority of service consists of the following three: Between Del Amo Boulevard/Pioneer Boulevard and Anaheim Hills; Between La Palma Avenue/Stanton Avenue and La Palma Avenue/Kellogg Drive; Between La Palma Avenue/Stanton Avenue and Anaheim Hills. Together these provide 15 minute service at peak times between La Palma Avenue/Beach Boulevard and La Palma Avenue/Kellogg Drive. Weekend service operates the same pattern every 45 minutes between Del Amo Boulevard/Pioneer Boulevard and Anaheim Hills.

Span and Frequency



Ridership

Route 38 carries 4,545 riders and 30.1 boardings per hour on weekdays, both slightly below average for Major Corridors. Ridership by time of day shows a strong peak pattern, matching service levels. Route 38's highest ridership stops are all those that intersect with Major Corridors: Euclid Street (37), Harbor Boulevard (543), and State College Boulevard (57). Each of these stops generates more than 300 riders per day. No other stop on Route 38 generates more than 200 riders per day except the stop at Beach Boulevard which serves Knotts Berry Farm and also interesects a Major Corridor - Route 29. Ridership west of Beach Boulevard and east of Kellogg Drive, where service levels are low throughout the day, generate notably lower ridership.

Performance

Indicator	Weekday	Saturday	Sunday
Daily Boardings	4,545	1,841	1,379
Revenue Hours	151	63	62
Productivity	30.1	29.4	22.4
Farebox Recovery	40.1%	38.8%	29.0%
On-Time Performance	86.1%	80.2%	88.5%

Service Design

Stops per Mile	Average Speed (MPH)	Peak Headway	Off-Peak Service Levels	Saturday Service Levels
4.4	14.46	15	Good	Fair

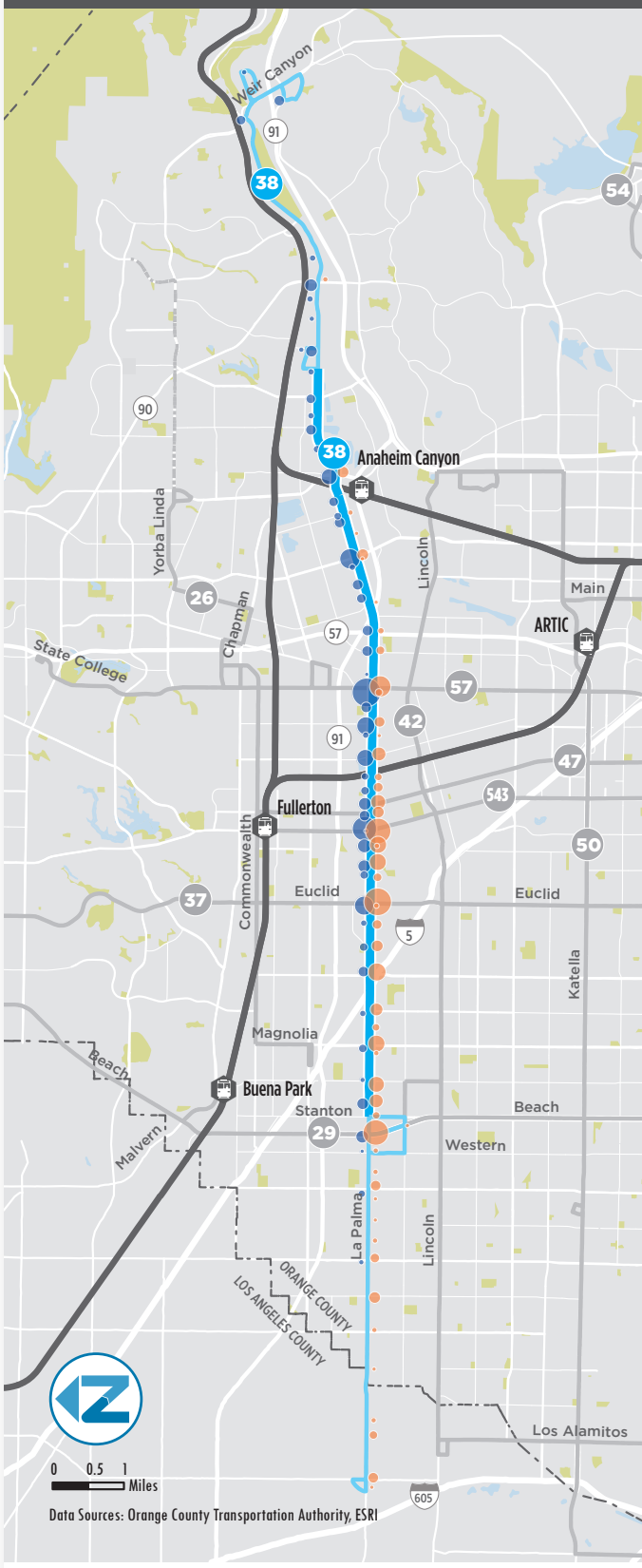
Strengths

Ridership patterns suggest that Route 38 provides east-west distribution riders transferring from major north-south corridors. Route 38 has the highest farebox recovery of any Major Corridor, recovering just over 40% of operating costs through passenger fares.

Weaknesses

Outside of intersections with other Major Routes, Route 38 stops have relatively low ridership. Though La Palma Avenue serves a mix of residential and commercial uses, much of the development is lower density than other Major Corridors. Multiple service patterns provide good service levels on portions of the route, but limited frequency for end-to-end connections, and add complexity to understanding how to use the service.

Route 38 Weekday Boardings



Average Daily Boardings by Bus Stop, March 2016*

Northbound Southbound

10

50

100

(proportionately sized)

*for stops with five or more average daily boardings

Transit

Major Bus Routes

- Frequent Service (Every 15 minutes)
- Less Frequent Service
- No Longer in Service
- Other Major Route

Metrolink

- Station/Line

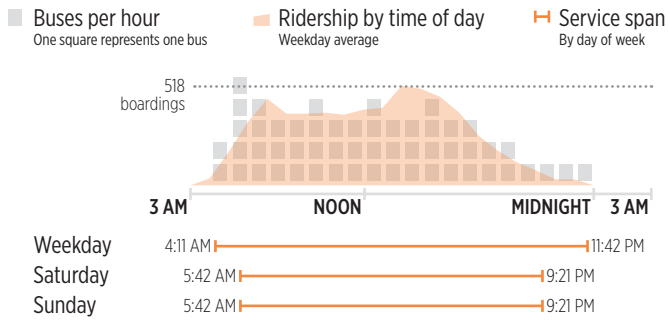
42

SEAL BEACH TO ORANGE

Service Patterns

Route 42 primarily operates between Norwalk Boulevard and The Village at Orange, providing 18-minute service throughout the day on weekdays and 25-minute service on weekends. Service is provided roughly every hour on Los Alamitos between Lincoln Avenue and Seal Beach. In addition, some trips deviate to serve the Braille Institute on Dale Avenue.

Span and Frequency



Ridership

Average weekday ridership on Route 42 (5,840) is the median of the Major Corridor group. Ridership is strongest between State College Boulevard and Valley View Street. Major ridership generators include Cypress College as well as intersections with Routes 29, 37, 543, and 57.

Performance

Indicator	Weekday	Saturday	Sunday
Daily Boardings	5,840	3,640	2,977
Revenue Hours	174	105	105
Productivity	33.5	34.5	28.3
Farebox Recovery	34.6%	43.9%	35.6%
On-Time Performance	82.0%	64.5%	78.8%

Service Design

Stops per Mile	Average Speed (MPH)	Peak Headway	Off-Peak Service Levels	Saturday Service Levels
4.9	12.96	18	Good	Good

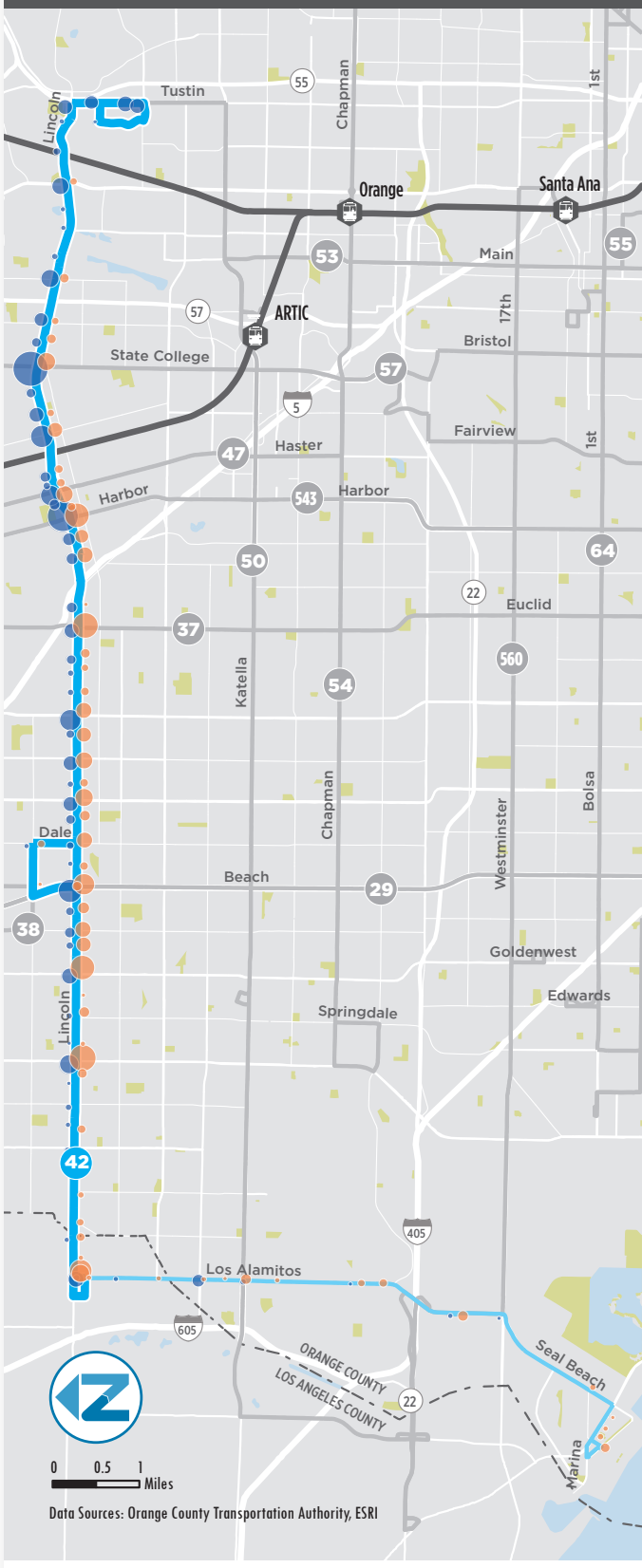
Strengths

Route 42 has consistent service levels throughout the day, maintaining a relatively frequenty headway of 18 minutes at peak and off peak times and supporting an all-day ridership market. Route 42's best segment is between Brookhurst Street and State College Boulevard, where 40% of ridership is generated on a four mile segment of the 26 mile route.

Weaknesses

Stop spacing on Route 42 is narrow compared to other Major Corridors, though speed is only slightly below average. Route 42 has the third lowest on-time performance of Major Corridors which may be associated with frequent stops. Route 42 does not provide service as frequently at peak times as other Major Corridors and may benefit from increased peak service to match demand.

Route 42 Weekday Boardings



Average Daily Boardings by Bus Stop, March 2016*

Northbound Southbound

10

50

100

(proportionately sized)

*for stops with five or more average daily boardings

Transit

Major Bus Routes

Frequent Service (Every 15 minutes)

Less Frequent Service

No Longer in Service

Other Major Route

Metrolink

Station/Line

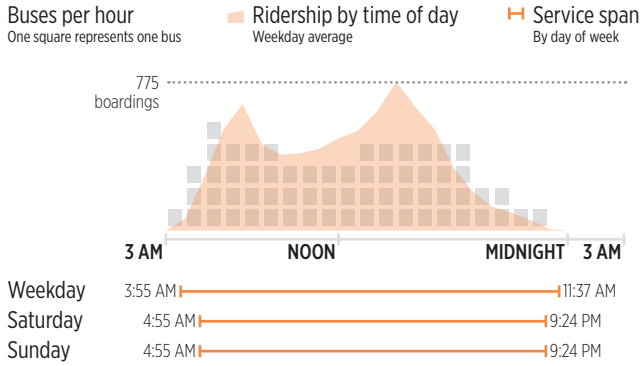
FULLERTON TO PENINSULA (NEWPORT BEACH) VIA ANAHEIM BLVD/FAIRVIEW ST

47

Service Patterns

Route 47 operates two patterns, both of which start at Fullerton Transportation Center. Most trips end at Balboa Boulevard/23rd Street. Roughly once every hour service extends to Balboa Pier. Service operates along the trunk of the route every 15 minutes during peak times and every 20 minutes during off-peak times. On weekends Route 47 operates the same two patterns, with the trunk operating every 20-30 minutes.

Span and Frequency



Ridership

Route 47 carries more than 7,500 boardings per day, the fourth highest ridership in the system. Route 47 has the highest ridership of any corridor without enhanced or limited stop service (such as Bravo! or Xpress) and average productivity for a Major Corridor. As of October 2016 Route 47 operates the hourly extension on Balboa Boulevard to Balboa Pier. Ridership data does not reflect this change. Highest ridership stops are those connecting to other Major Routes at Westminster, Mcfadden, and Edinger.

Performance

Indicator	Weekday	Saturday	Sunday
Daily Boardings	7,571	4,661	4,125
Revenue Hours	239	145	145
Productivity	31.6	32.1	28.4
Farebox Recovery	25.2%	25.8%	22.5%
On-Time Performance	87.3%	85.5%	91.1%

Service Design

Stops per Mile	Average Speed (MPH)	Peak Headway	Off-Peak Service Levels	Saturday Service Levels
4.7	13.3	15	Good	Fair

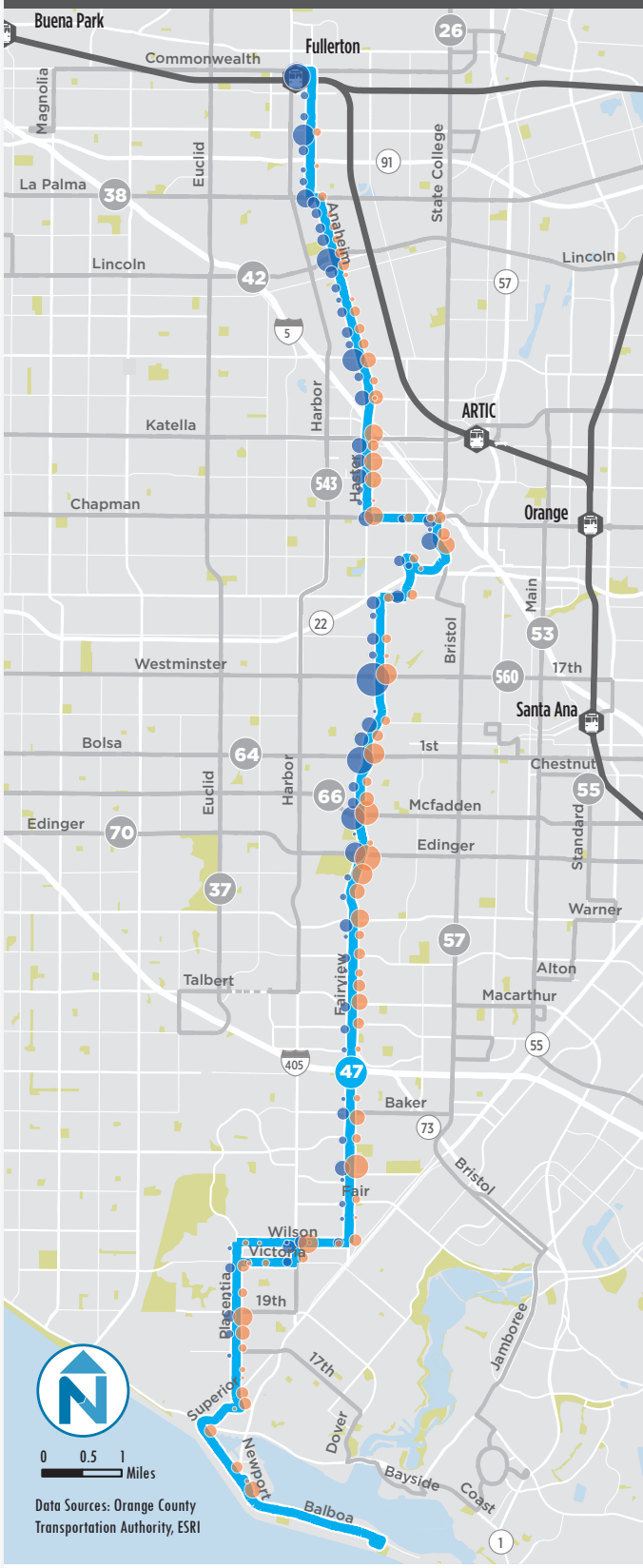
Strengths

In addition to 15 minute peak service, Route 47 maintains a good level of service during off-peak times. Overall the Fairview Street/Anaheim Boulevard corridor generates strong transit ridership.

Weaknesses

Route 47 service ends just after 11:30 p.m. on weekdays, a shorter service span than that of other routes with similar ridership levels. Route 47 deviates from Fairview Street to serve the Outlets at Orange. While this deviation is warranted given the ridership, it adds out-of-direction travel for those traveling between destinations on either side.

Route 47 Weekday Boardings



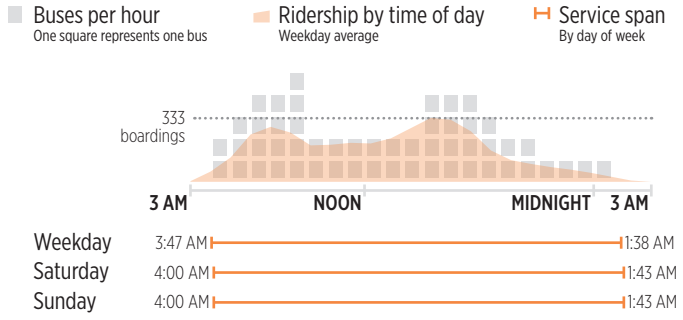
LONG BEACH TO ORANGE VIA KATELLA STREET

50

Service Patterns

Route 50 operates two service patterns. Regular service operates between CSU Long Beach and The Village at Orange operates every 30 minutes all day and every 60 minutes on weekends. At peak times 15 minute service is operated between Katella Avenue/Meridian Drive and ARTIC.

Span and Frequency



Ridership

The short line pattern between Meridian Drive and ARTIC providing 15-minute service is new as of June 2016 and is not reflected in the ridership data. Route 50 carries 3,769 boardings on weekdays, below average for Major Corridors. In the westbound direction the stop at Harbor Boulevard has the highest ridership (Disneyland and connections to route 543). In the eastbound direction CSU Long Beach has the highest ridership, despite being served only every 30 minutes.

Performance

Indicator	Weekday	Saturday	Sunday
Daily Boardings	3,769	2,392	1,980
Revenue Hours	121	76	76
Productivity	31.1	31.3	26.0
Farebox Recovery	19.9%	20.3%	16.8%
On-Time Performance	81.6%	79.2%	89.0%

Service Design

Stops per Mile	Average Speed (MPH)	Peak Headway	Off-Peak Service Levels	Saturday Service Levels
3.5	13.74	15	Fair	Poor

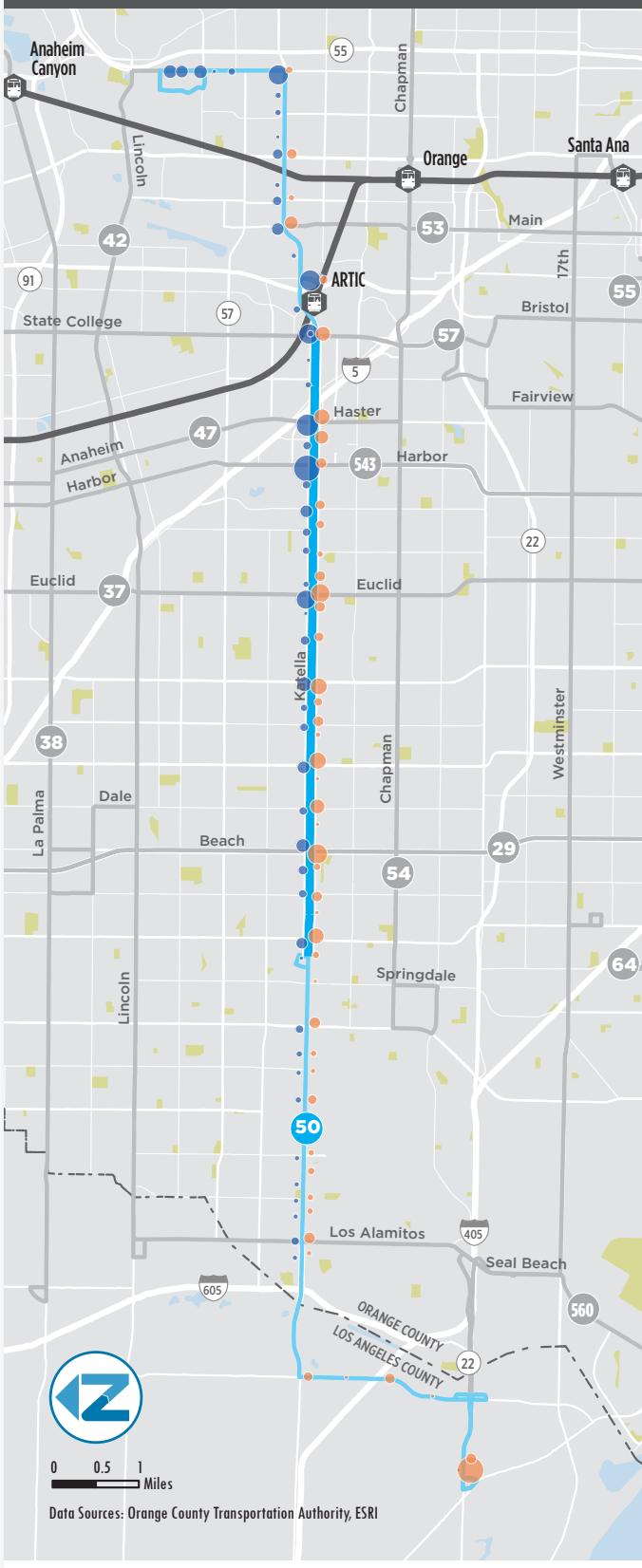
Strengths

Route 50 service span operates until 1:30 a.m. seven days per week. This span is longer than that of many other routes, but likely provides important connections for those traveling to events or commuting to second shift jobs at Disneyland, Angel Stadium, and the Anaheim Convention Center.

Weaknesses

CSU Long Beach, the single highest ridership stop, is only served every 30 minutes, however segments of Katella Avenue between CSU Long Beach and Meridian Drive (where peak 15 minute service begins) may not warrant increased service. Route 50 has the second lowest farebox recovery ratio of the Major Corridors, recovering less than 20% of fares on weekdays.

Route 50 Weekday Boardings



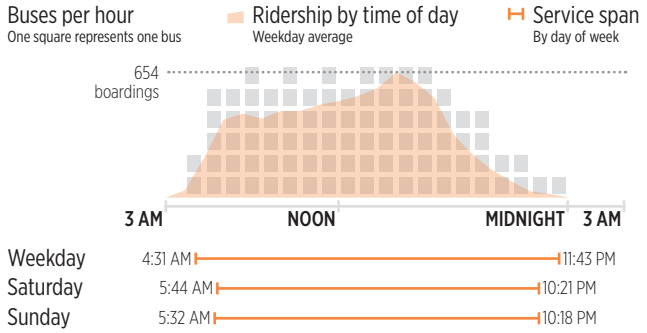
ANAHEIM TO IRVINE VIA MAIN STREET

53

Service Patterns

Route 53 operates service every 10 to 12 minutes between ARTIC and Macarthur Boulevard on Main Avenue. Every 20 to 30 minutes service extends to Culver Drive. On weekends Route 53 operates every 15 minutes on the trunk and every 45 minutes on the extended portion of the route.

Span and Frequency



Ridership

Route 53 carries more than 7,000 boardings per weekday and is highly productive, carrying more than 35 boardings per hour. Ridership is strong in the segment served by frequent headways, particularly between Edinger Boulevard and 17th Street. Ridership is highest in the afternoon peak, but is supported by consistently frequent service between 5:00 a.m. and 5:00 p.m., showing a strong all day market for transit. The southern segment with lower service levels generates little ridership by comparison.

Performance

Indicator	Weekday	Saturday	Sunday
Daily Boardings	7,096	4,611	3,466
Revenue Hours	197	141	115
Productivity	35.9	32.6	30.1
Farebox Recovery	28.5%	26.1%	23.2%
On-Time Performance	89.8%	95.1%	91.0%

Service Design

Stops per Mile	Average Speed (MPH)	Peak Headway	Off-Peak Service Levels	Saturday Service Levels
4.4	11.34	10	Excellent	Excellent

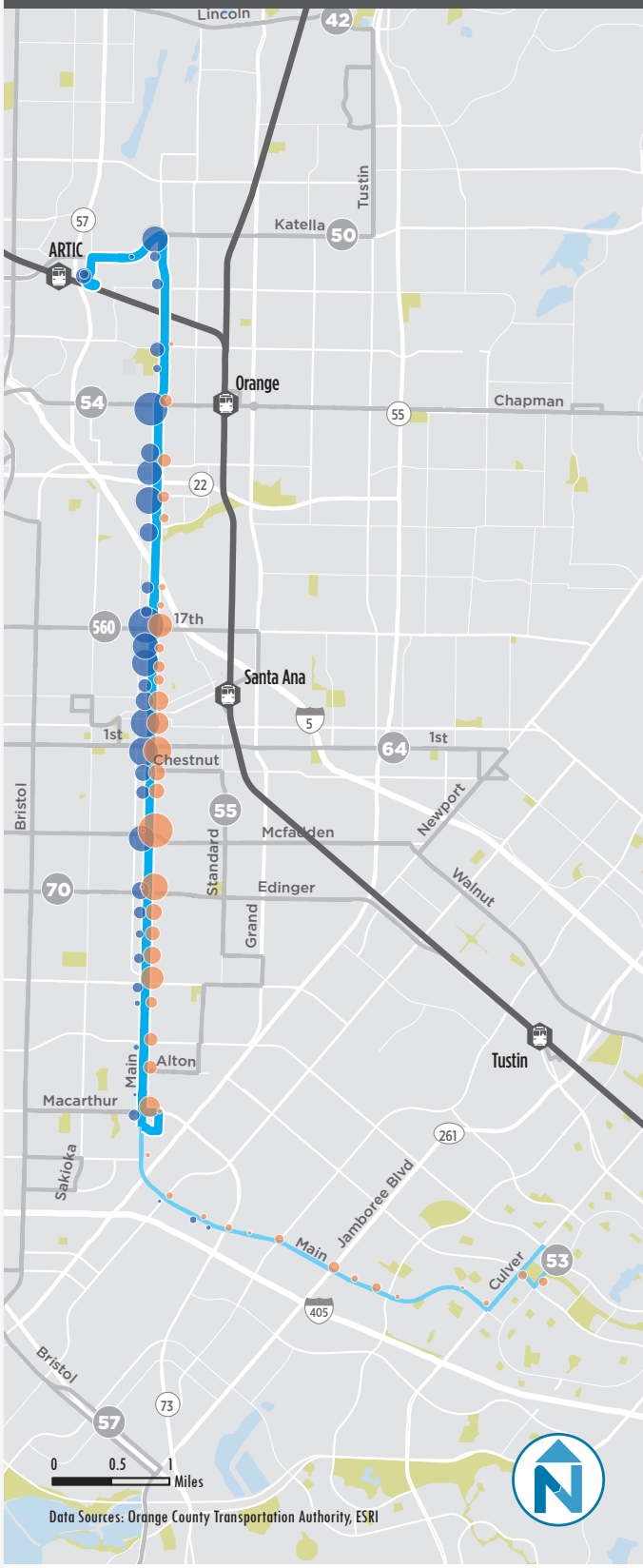
Strengths

Route 53 has the second best on-time performance of any Major Corridor and some of the highest all-day and weekend service levels, indicating a mature transit market.

Weaknesses

Average speed on Route 53 is the slowest of any Major Corridor, less than 12 miles per hour. Stop spacing is average, but could potentially be consolidated or operated with a limited stop overlay to improve travel times. In addition, weekday service ends before midnight, earlier than routes with similar ridership levels.

Route 53 Weekday Boardings



Average Daily Boardings by Bus Stop, March 2016*

Northbound Southbound

10

50

100

(proportionately sized)

*for stops with five or more average daily boardings

Transit

Major Bus Routes

- Frequent Service (Every 15 minutes)
- Less Frequent Service
- No Longer in Service
- Other Major Route

Metrolink

- Station/Line

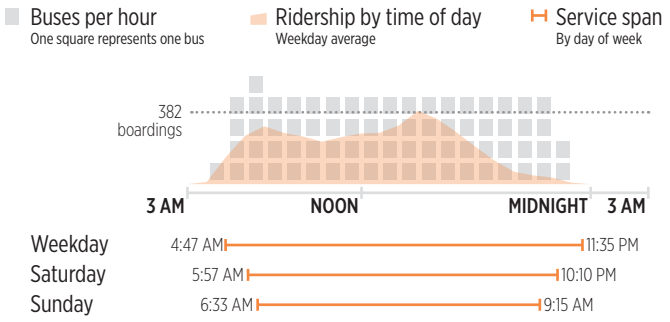
GARDEN GROVE TO ORANGE VIA CHAPMAN AVE

54

Service Patterns

Route 54 operates two patterns which alternate throughout the day. Half of trips start at Chapman Avenue/Valley View Street and end at Santiago Canyon College. The other half operate between Chapman Avanue/Beach Boulevard and Chapman Avenue/Rancho Santiago Boulevard only, providing service every 15 minutes in that segment on weekdays. On weekends service operates every 40 minutes from end-to-end.

Span and Frequency



Ridership

The short line pattern between Beach Boulevard and Rancho Santiago Boulevard is new as of June 2016 and is not reflected in the ridership data. Route 54 carries fewer riders than average for Major Corridors, just over 4,000 on weekdays, and has average productivity. In the westbound direction Santiago Canyon College and Chapman Avenue/Main Street are the highest ridership stops. In the eastbound direction Chapman Avenue/Beach Boulevard and Chapman Avenue/Main Street generate the most ridership.

Performance

Indicator	Weekday	Saturday	Sunday
Daily Boardings	4,002	2,016	1,413
Revenue Hours	124	67	47
Productivity	32.2	30.3	29.8
Farebox Recovery	23.9%	22.0%	20.9%
On-Time Performance	91.2%	86.6%	92.6%

Service Design

Stops per Mile	Average Speed (MPH)	Peak Headway	Off-Peak Service Levels	Saturday Service Levels
4	13.84	15	Excellent	Poor

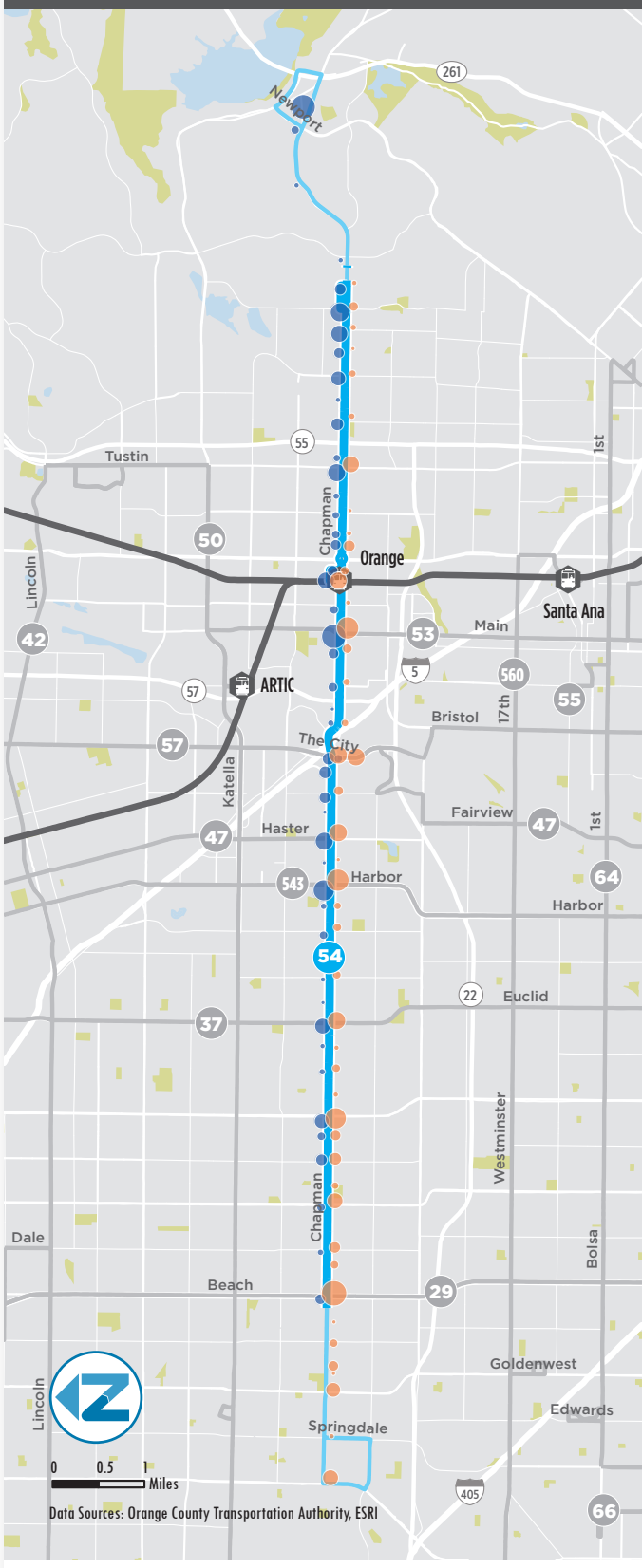
Strengths

Route 54 has the best on-time performance of any Major Corridor route with more than 90% of weekday trips arriving on-time. Though not yet reflected in the ridership data, all day 15 minute service will likely increase ridership.

Weaknesses

Weekend service operates every 40 minutes, significantly reducing the appeal of Route 54 service for those making trips outside of normal commute days.

Route 54 Weekday Boardings



Average Daily Boardings by Bus Stop, March 2016*

Northbound		Southbound
•	10	•
●	50	●
●	100	●

(proportionately sized)

*for stops with five or more average daily boardings

Transit

Major Bus Routes

- Frequent Service (Every 15 minutes)
- Less Frequent Service
- No Longer in Service
- Other Major Route

Metrolink

- Station/Line

SANTA ANA TO NEWPORT BEACH VIA STANDARD AVE/BRISTOL ST/ FAIRVIEW ST/17TH ST

55

Service Patterns

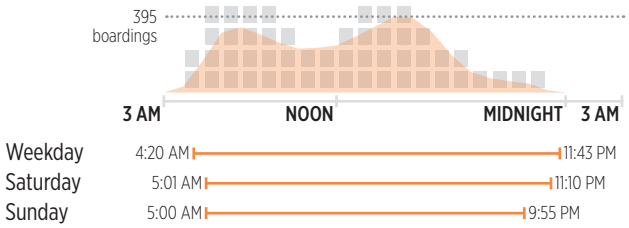
Route 55 operates a single service pattern between Santa Ana and Newport Beach with service every 15 minutes during peak periods and every 30 minutes at off-peak times and on weekends.

Span and Frequency

Buses per hour
One square represents one bus

Ridership by time of day
Weekday average

Service span
By day of week



Ridership

Route 55 carries below average ridership for Major Corridors and has the second lowest productivity, 24.8 boardings per hour. Ridership generators are focused at the intersections with other Major Routes, including Harbor Boulevard, Bristol Street, and Main Street.

Performance

Indicator	Weekday	Saturday	Sunday
Daily Boardings	4,342	2,920	2,423
Revenue Hours	175	122	108
Productivity	24.8	23.9	22.4
Farebox Recovery	20.2%	20.0%	18.3%
On-Time Performance	87.2%	89.2%	90.6%

Service Design

Stops per Mile	Average Speed (MPH)	Peak Headway	Off-Peak Service Levels	Saturday Service Levels
4.7	12.75	15	Fair	Fair

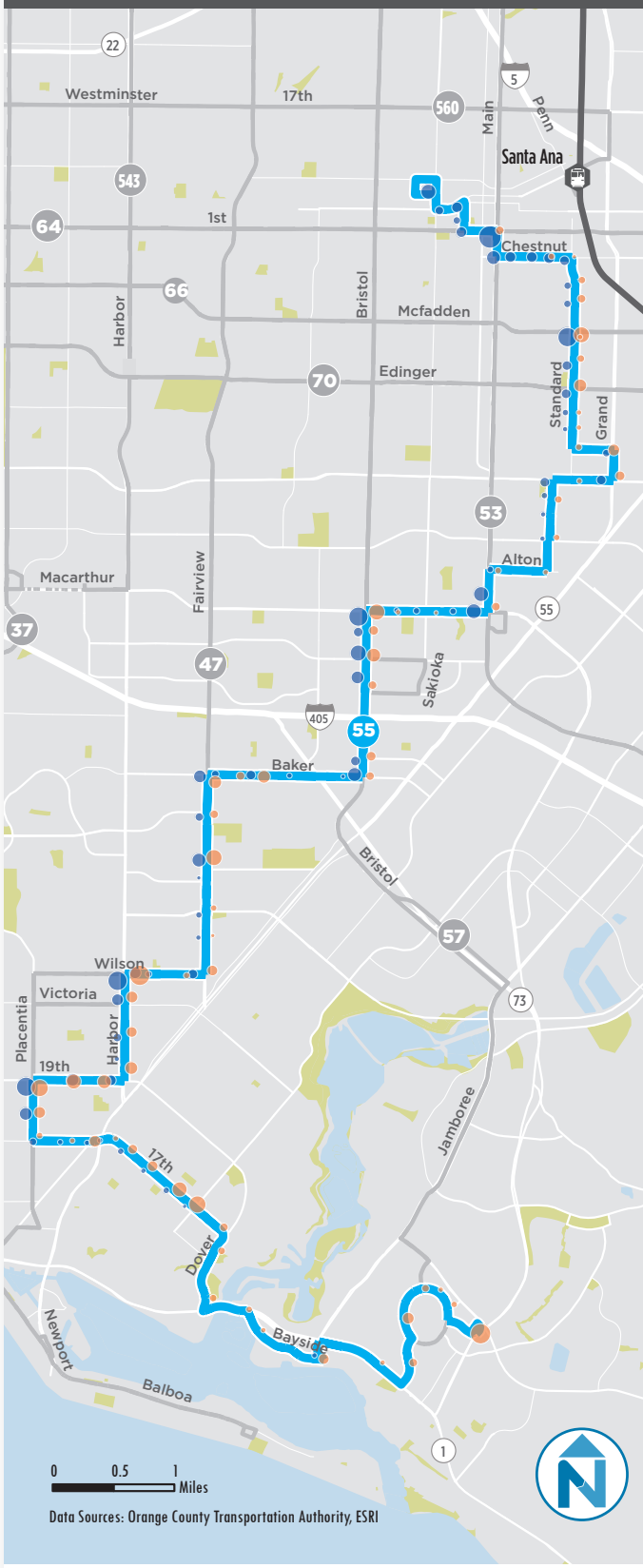
Strengths

Route 55 generally travels at an angle which, unlike most Major Corridors, may provide a one-seat ride to customers whose trips do not follow a single arterial.

Weaknesses

Compared to other Major Corridors, Route 55's alignment is complex with more than 20 turning movements in each direction. In addition, Route 55 service reduces to every 60 minutes by 7:00 p.m. which may be inconvenient for riders returning from retail jobs at Fashion Island, which typically end later in the day. Route 55's farebox recovery ratio is second lowest amonth Major Corridors.

Route 55 Weekday Boardings



Average Daily Boardings by Bus Stop, March 2016*

Northbound Southbound

10

50

100

(proportionately sized)

*for stops with five or more average daily boardings

Transit

Major Bus Routes

Frequent Service (Every 15 minutes)

Less Frequent Service

No Longer in Service

Other Major Route

Metrolink

Station/Line

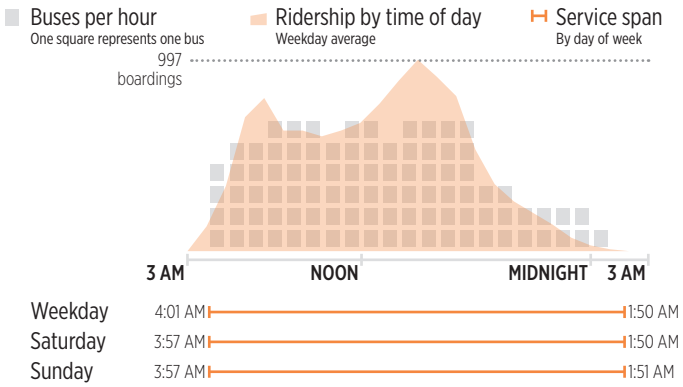
BREA TO NEWPORT BEACH
VIA STATE COLLEGE BLVD/BRISTOL ST

57

Service Patterns

Route 57 operates two service patterns. The first operates between Brea Mall and the Newport Transportation Center. Between State College Boulevard/Orangethorpe Avenue and Bristol Street/Sunflower Avenue this pattern operates as a limited stop Xpress service. The second pattern operates local service between State College Boulevard/Orangethorpe Avenue and Bristol Street/Sunflower Avenue, serving all stops. Xpress and local trips alternate between 6:00 a.m. and 6:00 p.m. on weekdays, providing 10-12 minute frequencies on the Xpress portion. On Sundays Route 57 alternates between both alignments, but serves all stops on all trips, providing 15 minute local service on the short-line segment.

Span and Frequency



Ridership

Route 57 carries more riders than any Major Corridor except for Bravo! Corridors and has above average productivity. Stops served by the Xpress trips have significantly more ridership than those served by local service. Route 57 generates 665 daily boardings at the southbound stop at Bristol Street/17th Street the highest ridership stop in the OC Bus system. Southbound stops at Bristol Street/McFadden Avenue, Bristol Street/1st Street and the northbound stop at Bristol Street/17th Street all generate more than 400 boardings per weekday.

Performance

Indicator	Weekday	Saturday	Sunday
Daily Boardings	11,067	7,330	5,898
Revenue Hours	309	219	203
Productivity	35.8	33.4	29.1
Farebox Recovery	27.8%	25.6%	21.9%
On-Time Performance	84.8%	86.4%	88.5%

Service Design

Stops per Mile	Average Speed (MPH)	Peak Headway	Off-Peak Service Levels	Saturday Service Levels
4	13.84	15	Excellent	Poor

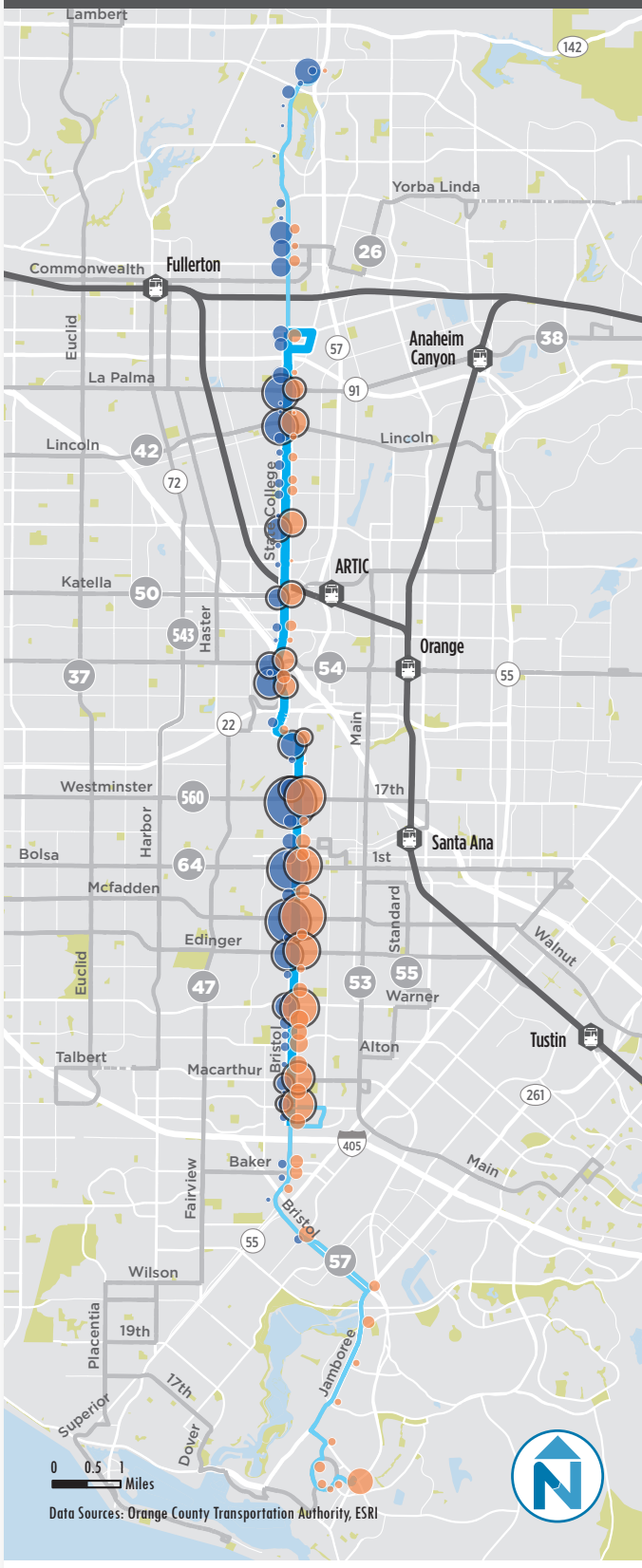
Strengths

The Xpress overlay on Route 57 provides improved travel times for riders traveling longer distances to major stops. Ridership patterns show that, though wider stop spacing on the Xpress pattern may require longer walk distances, the faster travel time is a worthwhile tradeoff.

Weaknesses

The Xpress pattern stops operating at 6:00 p.m., which may be earlier than many commuters leave work. Extending the Xpress span may improve travel times for more customers.

Route 57 Weekday Boardings



Average Daily Boardings by Bus Stop, March 2016*

Northbound Southbound

10

50

100

Bravo/Xpress

(proportionately sized)

*for stops with five or more average daily boardings

Transit

Major Bus Routes

Frequent Service (Every 15 minutes)

Less Frequent Service

No Longer in Service

Other Major Route

Metrolink

Station/Line

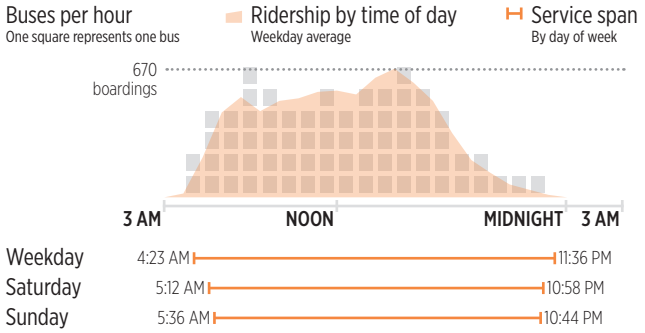
HUNTINGTON BEACH TO TUSTIN VIA BOLSA AVE/1ST ST

64

Service Patterns

Route 64 operates alternating local service and limited stop Xpress service between Bolsa Avenue/Edwards Street and Larwin Square every 10 to 15 minutes on weekdays. Early morning service operates locally and starts at Westminster Mall. In the morning and afternoon peak period, trips extend west to the Boeing Campus in Huntington Beach roughly every hour. Weekend service operate every 15 minutes between Edwards Street and Larwin Square.

Span and Frequency



Ridership

Route 64x carries 7,484 boardings per day and is the most productive route in the system carrying 46.4 boardings per hour. Stios at Main Street, Harbor Boulevard, and Bristol Street each have bidirectional boardings of more than 600 riders per weekday, likely associated with transfers to Major Corridors.

Performance

Indicator	Weekday	Saturday	Sunday
Daily Boardings	7,484	5,386	4,433
Revenue Hours	161	150	129
Productivity	46.4	35.9	34.4
Farebox Recovery	33.4%	25.8%	23.6%
On-Time Performance	85.7%	90.6%	83.4%

Service Design

Stops per Mile	Average Speed (MPH)	Peak Headway	Off-Peak Service Levels	Saturday Service Levels
4.1	12.46	10	Excellent	Excellent

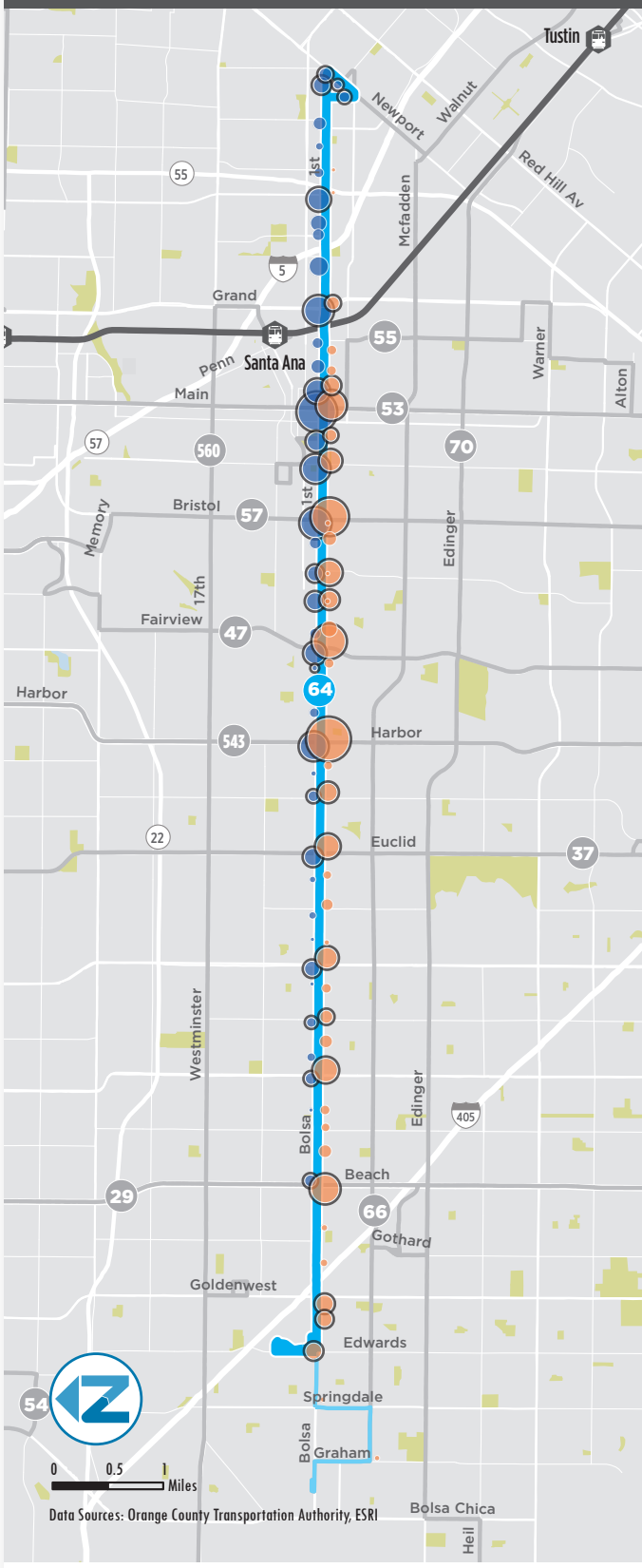
Strengths

High levels of productivity on Route 64 indicates that the rider market could support additional service. Average stop spacing on the Xpress overlay is roughly twice as wide as the local service, providing faster travel time for riders and making the service more attractive.

Weaknesses

Service levels on Route 64 are consistently high until 6:00 p.m. when the Xpress pattern stops operating and service drops to every 30 minutes. Extending the span of the Xpress pattern may make the service more convenient for commuters whose shifts end later in the evening.

Route 64 Weekday Boardings



Average Daily Boardings by Bus Stop, March 2016*

Northbound Southbound

10

50

100

Bravo/Xpress

(proportionately sized)

*for stops with five or more average daily boardings

Transit

Major Bus Routes

Frequent Service (Every 15 minutes)

Less Frequent Service

No Longer in Service

Other Major Route

Metrolink

Station/Line

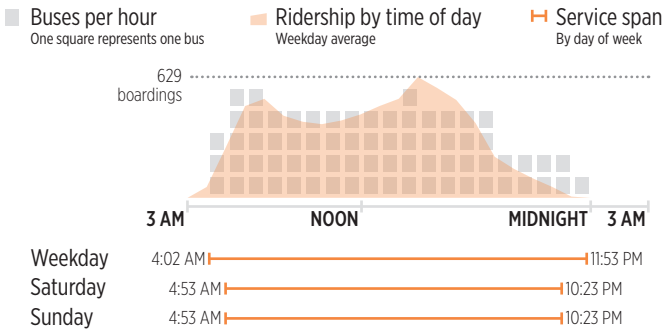
HUNTINGTON BEACH TO IRVINE VIA MCFADDEN AVE/WALNUT AVE

66

Service Patterns

Route 66 operates two alternating service patterns throughout the day and a third at peak times. Half of trips operate between Goldenwest Transportation Center and Irvine Valley College and half of trips operate between Goldenwest Transportation Center and Larwin Square in Tustin. Service operates every 12-15 minutes between Goldenwest Transportation Center and McFadden Avenue/Grand Avenue throughout the day. In the morning and afternoon/evening Route 66 extends west to the Boeing campus on Bolsa Avenue in Huntington Beach roughly every hour. Combined with Route 64, there is service every 20-30 minutes during peak times to Boeing. On weekends Route 66 operates 20 minute service between Goldenwest Transportation Center and Mcfadden Avenue/Grand Avenue with two out of three trips serving Larwin Square and hourly service to Irvine Valley College.

Span and Frequency



Ridership

Route 66 carries almost 7,000 passengers per weekday and has the second highest productivity of any route, 38.7 boardings per hour. Ridership is highest between Harbor Boulevard and Walnut Avenue, with the stops at Bristol Street generating more than 800 passengers per day in both directions.

Performance

Indicator	Weekday	Saturday	Sunday
Daily Boardings	6,974	4,865	4,224
Revenue Hours	180	115	118
Productivity	38.7	42.4	35.9
Farebox Recovery	30.4%	30.9%	26.8%
On-Time Performance	89.8%	86.3%	91.6%

Service Design

Stops per Mile	Average Speed (MPH)	Peak Headway	Off-Peak Service Levels	Saturday Service Levels
4.7	12.81	15	Excellent	Excellent

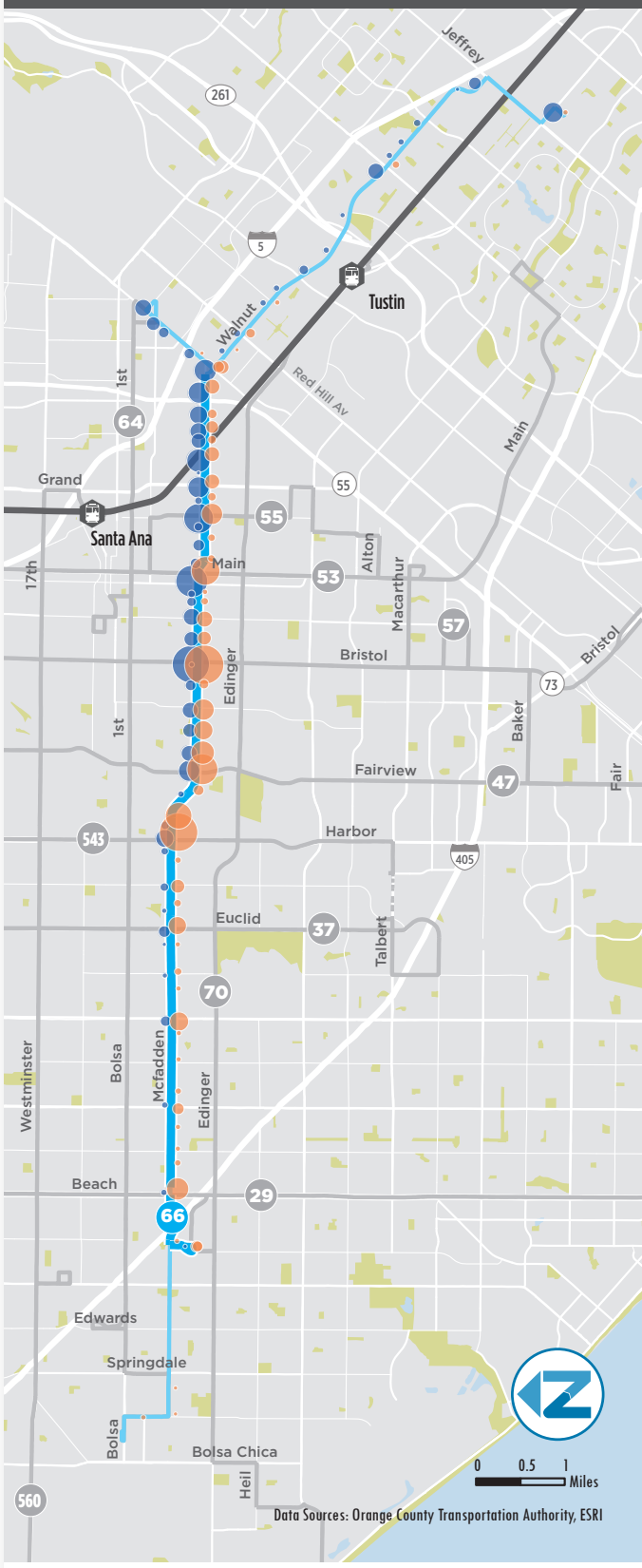
Strengths

Route 66 has a high level of service throughout the day and on weekends and has almost 90% on-time performance, providing a consistent and reliable service for customers. In addition, the high productivity of this routes indicates that it could potentially support increased levels of service in the trunk segment of the route.

Weaknesses

Less frequent segments serving Boeing, Larwin Square, and Irvine Valley College generate lower levels of ridership compared to the trunk of the route.

Route 66 Weekday Boardings



Average Daily Boardings by Bus Stop, March 2016*

Northbound Southbound

10

50

100

(proportionately sized)

*for stops with five or more average daily boardings

Transit

Major Bus Routes

Frequent Service (Every 15 minutes)

Less Frequent Service

No Longer in Service

Other Major Route

Metrolink

Station/Line

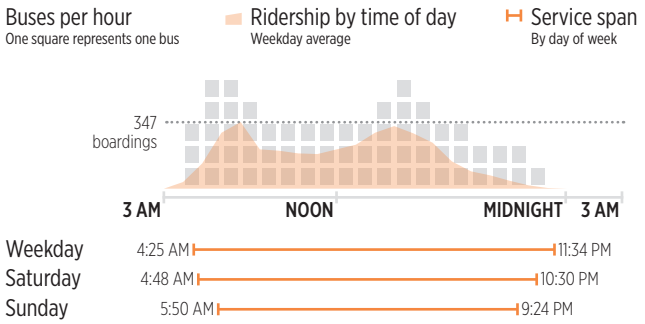
SUNSET BEACH TO TUSTIN VIA EDINGER AVE

70

Service Patterns

Route 70 operates between the Goldenwest Transportation Center and Tustin Metrolink Station every 15 minutes during peak periods and every 20 minutes during midday. On an hourly basis trips extend west to Warner Avenue/Pacific Coast Highway. Saturday and Sunday service operates every 20 and 30 minutes, respectively, with the Warner Avenue/Pacific Coast Highway extension served on half of trips.

Span and Frequency



Ridership

Route 70 has below average ridership and productivity compared to other Major Routes. Ridership is consistently higher east of Harbor Boulevard and matches service levels throughout the day, with higher ridership in the peak periods.

Performance

Indicator	Weekday	Saturday	Sunday
Daily Boardings	3,516	2,276	1,525
Revenue Hours	129	103	63
Productivity	27.2	22.0	24.2
Farebox Recovery	20.5%	16.1%	16.9%
On-Time Performance	87.2%	87.0%	87.3%

Service Design

Stops per Mile	Average Speed (MPH)	Peak Headway	Off-Peak Service Levels	Saturday Service Levels
4.2	15.22	15	Good	Fair

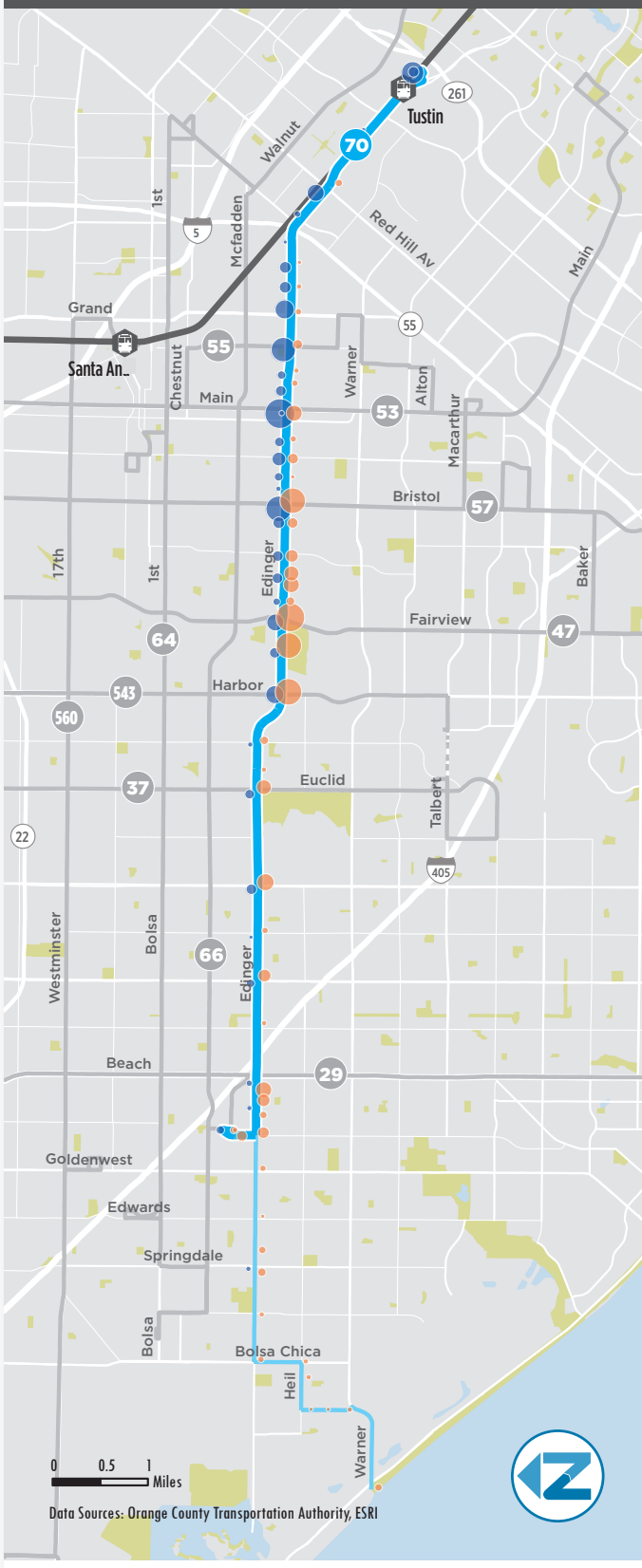
Strengths

Route 70 has the highest average speed of all surface-running Major Corridors and good on-time performance.

Weaknesses

The hourly extension to Pacific Coast Highway generates lower levels of ridership and reduces Route 70's productivity.

Route 70 Weekday Boardings



Average Daily Boardings by Bus Stop, March 2016*

Northbound Southbound

10

50

100

(proportionately sized)

*for stops with five or more average daily boardings

Transit

Major Bus Routes

- Frequent Service (Every 15 minutes)
- Less Frequent Service
- No Longer in Service
- Other Major Route

Metrolink

- Station/Line

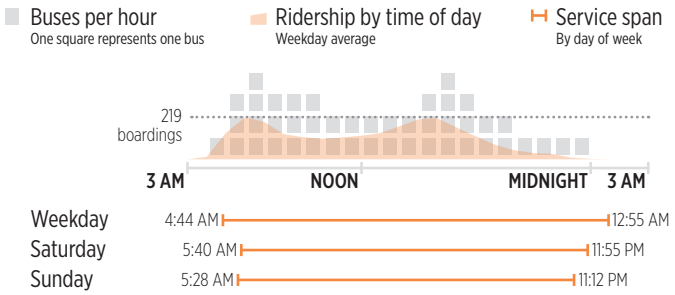
ANAHEIM TO LAGUNA HILLS VIA 5 FWY/MAIN ST

83

Service Patterns

Route 83 operates between Laguna Hills Transportation Center and Disneyland using a combination of surface streets and the 5 Freeway. During peak times Route 83 operates a short-line pattern between the Orange County Civic Center in Santa Ana and Laguna Hills Transportation Center, providing service every 20-30 minutes in that segment. At off-peak times and on weekends Route 83 operates every 35-40 minutes.

Span and Frequency



Ridership

Route 83 has the second lowest ridership and is the least productive of the Major Corridors. In the northbound direction ridership is highest at the Laguna Hills Transportation Center and the stop at El Toro Road/Paseo De Valencia (likely due to commuters parking in nearby surface lots when the Laguna Hills Transportation Center is full). In the southbound direction ridership is highest at Disneyland.

Performance

Indicator	Weekday	Saturday	Sunday
Daily Boardings	2,366	1,466	1,003
Revenue Hours	106	77	54
Productivity	22.3	19.1	18.7
Farebox Recovery	14.6%	12.9%	12.7%
On-Time Performance	84.9%	82.0%	84.8%

Service Design

Stops per Mile	Average Speed (MPH)	Peak Headway	Off-Peak Service Levels	Saturday Service Levels
1.9	20.99	15	Poor	Poor

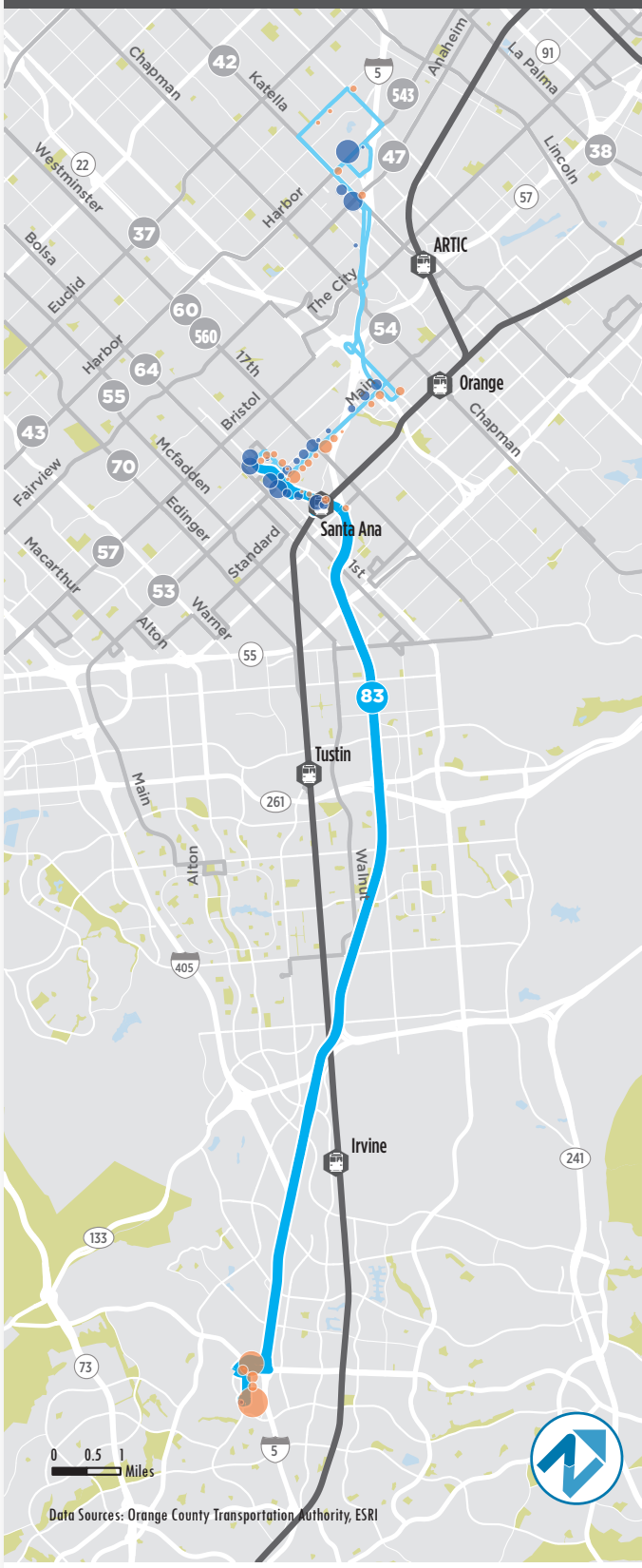
Strengths

Due to operating a long segment on the freeway, Route 83 operates at higher average speeds than any other Major Corridor. In addition, the route is anchored by two major destinations on the north end, the Orange County Civic Center and Disneyland, which have the potential to draw commuters and visitors from south Orange County.

Weaknesses

Route 83 is a hybrid between local and express service, which serves a distinct market of commuters but lacks all-day frequency and consistent stop spacing of more productive major corridors. With the majority of the alignment operated closed-door on the freeway there is a limited draw area for riders.

Route 83 Weekday Boardings



Average Daily Boardings by Bus Stop, March 2016*

Northbound Southbound

10

50

100

(proportionately sized)

*for stops with five or more average daily boardings

Transit

Major Bus Routes

Frequent Service (Every 15 minutes)

Less Frequent Service

No Longer in Service

Other Major Route

Metrolink

Station/Line

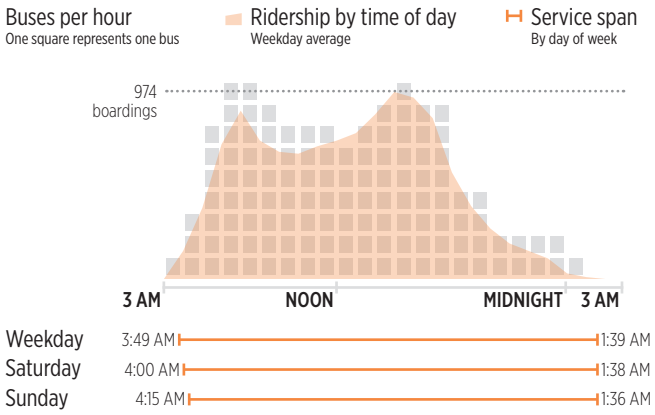
FULLERTON TO COSTA MESA VIA HARBOR BLVD

43/543

Service Patterns

Route 43 and Bravo! 543 both operate in the Harbor Boulevard corridor, providing combined frequency of every 7-8 minutes between 6:00 a.m. and 6:00 p.m. Local Route 43 operates between Harbor Boulevard/Bernard in Costa Mesa and the North Justice Center in Fullerton. Bravo! 543 operates a shorter alignment with wider stop spacing between Harbor Boulevard/MacArthur Boulevard and the Fullerton Transportation Center. Both routes operate every 20 minutes on weekends, providing combined frequency of 10 minutes.

Span and Frequency



Ridership

Combined, Route 43 and 543 carry 11,576 riders on weekdays, second only to Route 60/560. Productivity of 43 is slightly higher than 543. Ridership at stops served by Bravo! Is notably higher than those only served by Route 43.

Performance

	43			543		
Indicator	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Daily Boardings	7,417	5,449	4,367	4,159	2,341	1,986
Revenue Hours	202	166	141	124	76	73
Productivity	36.6	32.9	30.9	33.5	30.9	27.2
Farebox Recovery	29.4%	25.4%	23.4%	24.3%	23.0%	19.5%
On-Time Performance	81.1%	75.7%	80.0%	82.3%	76.5%	83.7%

Service Design

Stops per Mile	Average Speed (MPH)	Peak Headway	Off-Peak Service Levels	Saturday Service Levels
4.2	15.22	15	Good	Fair

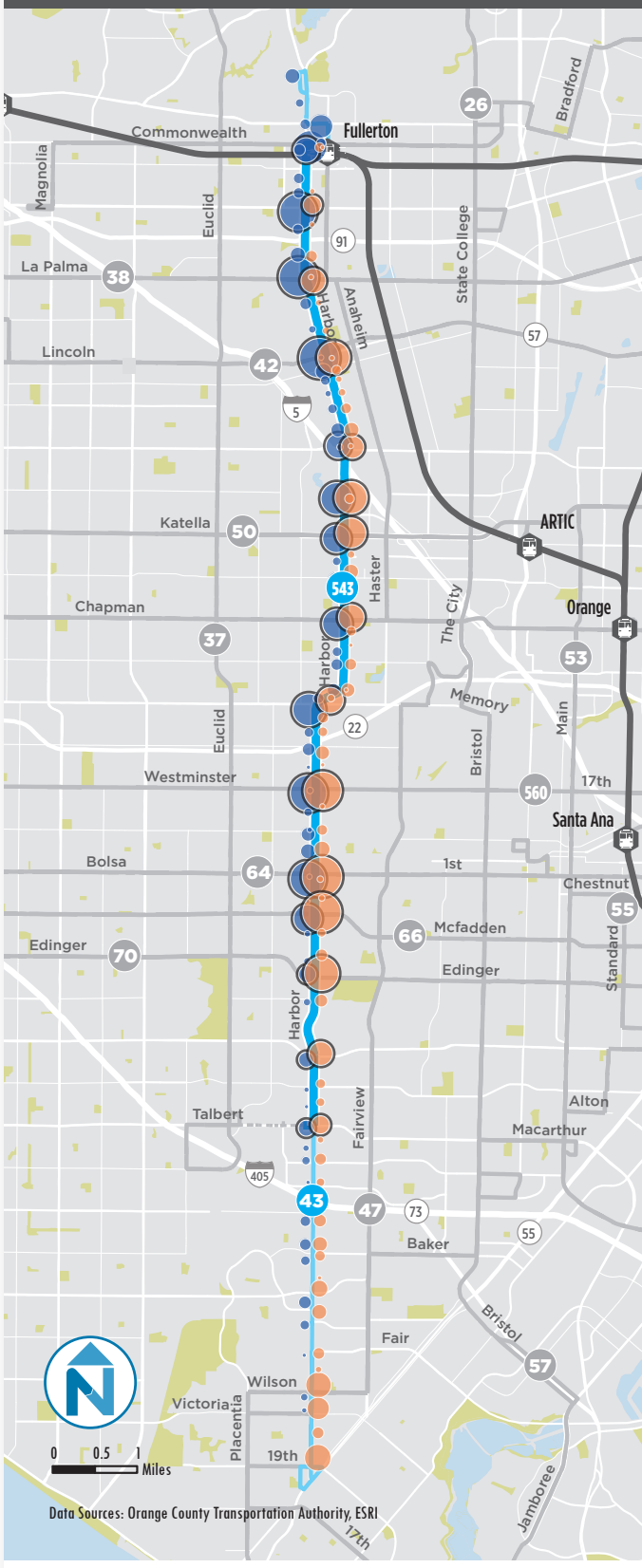
Strengths

The Harbor Boulevard Corridor has consistently high ridership in the Bravo! Segment and serves as a primary north-south spine moving passengers in north Orange County. Limited stop spacing on Bravo! provides 20% faster travel times on average.

Weaknesses

Bravo! service reduces to hourly at 6:00 p.m. and stops after 7:00 p.m., limiting access to the service for commuters whose shifts end later in the evening. Route 43 has the worst on-time performance of any Major Corridor and Route 543 on-time performance is also below average, potentially impacting the reliability of the service for riders.

Route 43/543 Weekday Boardings



Average Daily Boardings by Bus Stop, March 2016*

Northbound Southbound

10

50

100

Bravo/Xpress

(proportionately sized)

*for stops with five or more average daily boardings

Transit

Major Bus Routes

Frequent Service (Every 15 minutes)

Less Frequent Service

No Longer in Service

Other Major Route

Metrolink

Station/Line

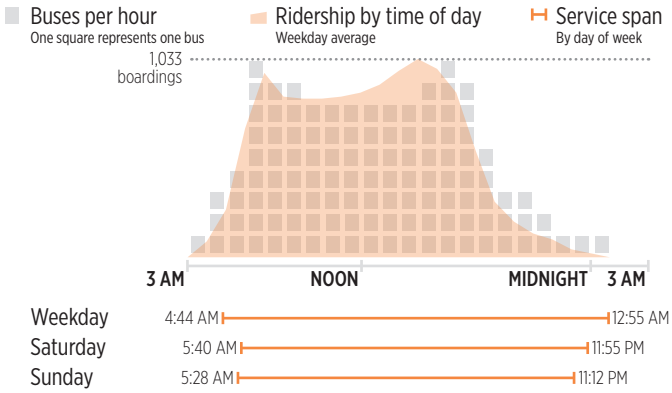
LONG BEACH TO TUSTIN VIA WESTMINSTER AVE/17TH ST

60/560

Service Patterns

Route 60 and Bravo! 560 serve the Westminster/17th corridor, providing alternating local and limited stop service every 7-9 minutes between the Santa Ana Regional Transportation Center and Westminster Boulevard/Goldenwest Street between 6:00 a.m. and 6:00 p.m. on weekdays. Route 60 operates further east, providing 20 minute service to Larwin Square throughout the day. Every other Bravo! trip serves CSU Long Beach, providing 30 minute service on weekdays. When Bravo! is not operating (early mornings, evenings, and weekends), Route 60 serves CSU Long Beach. On weekdends Route 60 operates local only service every 15 minutes.

Span and Frequency



Ridership

Route 60 and Bravo! 560 combined carry more passengers than any other corridor, 12,196 on average. Route 560 is a new service as of June 2016, and is not reflected in stop-level ridership data, however stops that are now served by Bravo! are those that generated the most ridership prior to implementation of Route 560.

Performance

	60			560
Indicator	Weekday	Saturday	Sunday	Weekday
Daily Boardings	9,460	5,891	4,447	2,735
Revenue Hours	260	170	150	134
Productivity	36.4	34.6	29.7	20.4
Farebox Recovery	25.4%	23.5%	18.9%	13.6%
On-Time Performance	88.8%	87.0%	88.3%	87.3%

Service Design

Stops per Mile	Average Speed (MPH)	Peak Headway	Off-Peak Service Levels	Saturday Service Levels
1.9	20.99	15	Poor	Poor

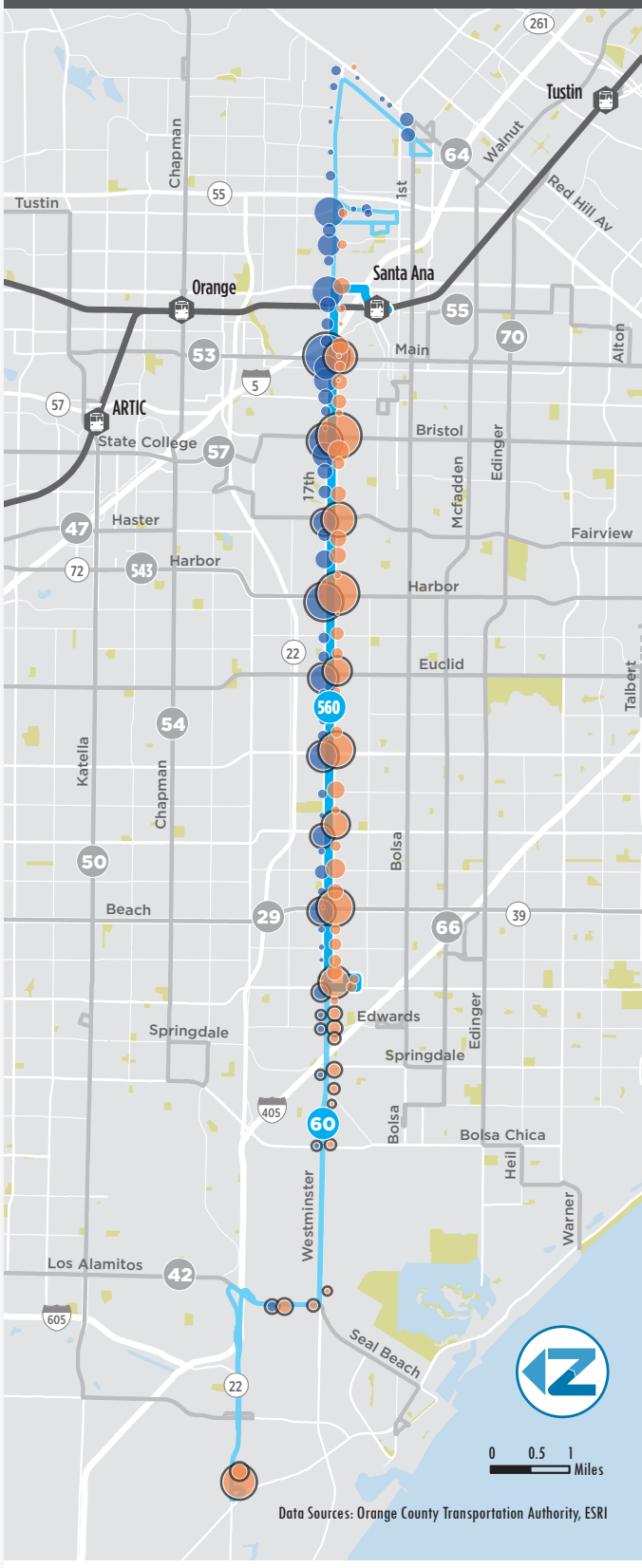
Strengths

Route 60 and Bravo! 560 serve as a major spine for the network, providing quality and frequent connections for passengers traveling east-west. Though not yet reflected in the ridership data, the introduction of Bravo! Service to this corridor marks a major expansion of enhanced service provided by OC Bus.

Weaknesses

Unlike Bravo! 543, Bravo! 560 does not operate on weekends. Though Route 60 provides a high level of service on weekends, faster service provided by Bravo! on weekends may be warranted.

Route 60/560 Weekday Boardings



Average Daily Boardings by Bus Stop, March 2016*

Northbound Southbound

10

50

100

Bravo/Xpress

(proportionately sized)

*for stops with five or more average daily boardings

Transit

Major Bus Routes

Frequent Service (Every 15 minutes)

Less Frequent Service

No Longer in Service

Other Major Route

Metrolink

Station/Line