Submitted to:
Kane County DOT

Submitted by:
AECOM
303 East Wacker Drive
Chicago, IL 60601
Project Number 60102198
December 27, 2010

Randall Road Pace Route 529 Plan: Improving Access to Bus Service

Kane County, Illinois
Sullivan Road to IL 38

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Executive Summary

In Fall 2005, Pace Route 529 was extended to Randall Road to serve riders along five growing communities in Kane County; Aurora, North Aurora, Batavia, Geneva, and St Charles. Recognizing the transit potential of the Randall Road corridor, the Kane County Division of Transportation embarked on a study to evaluate possible alternatives for improving bus access and ridership along the corridor from Sullivan Road to Illinois Route 38. Guided by an advisory council consisting of representatives from the impacted municipalities, Kane County, the Regional Transportation Authority (RTA), Pace Suburban Bus, and the consultant team AECOM developed a set of recommendations to:

- Optimize transit operations
- Support transit-oriented land use within corridor
- Improve ridership
- Provide a cost-effective implementation plan and final report

The AECOM staff assessed surface infrastructure deficiencies in order to improve pedestrian access, evaluated route service alternatives to maximize transit operations, and developed future land use design guidelines to promote transit-oriented development. A Study website was created to share study information, engage and solicit public input. The website was also used as the platform to conduct an online survey in identifying issues related to pedestrian access, service, schedule, bus stop locations, and other areas of interest. Major comments received include the desire to have basic amenities, such as shelters at bus stop locations, pedestrian access via walkways to and from bus service, and additional stops at various locations.

Using the input from the survey, Kane County and AECOM conducted numerous field visits with Pace representatives to determine recommendations for improvements along the corridor. AECOM developed short and long term recommendations that included installation of bus shelters, waiting pads, connecting walkways, crosswalks, and access ramps at bus stop locations that have high ridership. Additional stops are recommended at strategic locations to enhance transit service without major impacts to existing roadway operations. AECOM also developed future land use guidelines with Kane County staff in an effort to encourage long term transit oriented development and capture future riders. These guidelines include: Encouraging mixed-use development; Connecting residences to corridor; Orienting buildings to the street; Creating public and open spaces; Recreating the parking environment; and Designing for the pedestrian experience.

Throughout the process, three advisory council meetings were held to gain consensus on the Study approach, evaluation results, and recommendations. An implementation plan is proposed for the project in the short term and a long term plan included potential funding sources and strategies for future development. Through partnering with Pace and the RTA, Kane County is ready to take the first steps in improving access to the Randall Road corridor and seize the opportunity to promote transit service along a major corridor connecting the northern and southern part of the County.

1.0 Introduction

Pace Bus Route 529 service was extended to Randall Road in the fall 2005 bringing much needed transit service to the communities of Aurora, North Aurora, Batavia, Geneva, and St. Charles. The highly anticipated service was a welcomed addition to the Kane County transportation system. However, the corridor continues to lack the infrastructure to complement the availability of the service; the most notable deficiency is the lack of pedestrian and ADA access to bus stops. The land use type along the northern area is generally commercial with large setbacks from the roadways, forcing bus riders to traverse wide spaces with intermittent crossings and long parking lots. There are limited waiting areas and safe sidewalks to board and alight the bus. Improved surface infrastructure and access to transit points are critical factors to increase ridership in this corridor.

In August 2009, Kane County contracted with AECOM to conduct the "Randall Road Pace Route 529 Plan: Improving Access to Bus Service." The Study is located in Kane County on Pace Route 529 along the Randall Road corridor from Illinois Route 38 to Sullivan Road. There are four main objectives to the Study:

1. Optimize transit operations;
2. Support transit-oriented land use within corridor;
3. Improve ridership; and,
4. Provide a cost-effective implementation plan in a final report.

The Study evaluates the accessibility of bus services along the corridor and identifies results in a cost effective implementation plan. The plan presents feasible recommendations to transit infrastructure improvements, such as, sidewalk locations, signage, bus pads, bus turnouts, and improved access to commercial and employment centers along the route. In addition, the implementation plan identifies potential funding sources to implement project recommendations.

To conduct this project, Kane County partnered with the Regional Transit Authority (RTA), Kane/Kendall Council of Mayors, Pace Suburban Bus, Illinois Department of Transportation (IDOT), Village of North Aurora, City of Batavia, City of Geneva, City of St. Charles, and City of Aurora. Representatives from each partner organization formed the Route 529 Randall Road Advisory Council to better coordinate the efforts of this Study and to build consensus. One component of the Study was to seek public input using a project website and an online survey. Input from these sources was used, along with field visit data, to produce final recommendations. In summary, this effort sought to understand the problems and opportunities in the corridor, forming the recommendations for access and operational improvements. Implementation of the plan recommendations should lead to enhancements to the pedestrian experience for existing bus passenger and future riders.

2.0 Existing Corridor Conditions

The project study area is generally defined as the corridor centered on Randall Road from Illinois Route 38 to Sullivan Road. Randall Road is a major north-south arterial highway between Crystal Lake in McHenry County and just south of Galena Boulevard in Aurora.

The study area traverses the five Kane County municipalities of St. Charles, Geneva, Batavia, North Aurora and Aurora for a distance of approximately 8 miles. From IL 38 to Oak Street, there are four through lanes (two lanes in each direction) with additional turning lanes at most intersections. From south of Oak Street to Sullivan Road, Randall Road becomes a two lane road (one lane in each direction). Traffic signals exists at all major intersections. Major cross streets are IL 38, Keslinger Road, Fabyan Parkway, Main Street (Batavia), Orchard Road/Mooseheart Road, and Oak Street. In addition, bridges carry Randall Road over I-88 and the Union Pacific railroad. There is a median island, with minimal streetscape, in portions of the corridor. The majority of the roadway is a rural cross section with open drainage and no curb and gutter. Posted speed limits within the corridor are 45 or 50 miles per hour. Average Daily Traffic volumes exceed 40,000 vehicles per day north of Orchard Road, and approximately 20,000 south of Orchard according to the Kane County Division of Transportation Traffic Data website.

Land use in the corridor is varied, ranging across institutional, commercial, residential, and some industrial uses. A description of the major uses and development patterns follows.

Kane County Judicial Center

At the north end, the Kane County Judicial Center is located on Illinois Route 38 one mile west of Randall Road and serves as the northern terminal of Route 529. The Kane County Fairgrounds, northwest of the IL Route 38 and Randall Road intersection, hosts a number of events throughout the year, primarily on weekends.

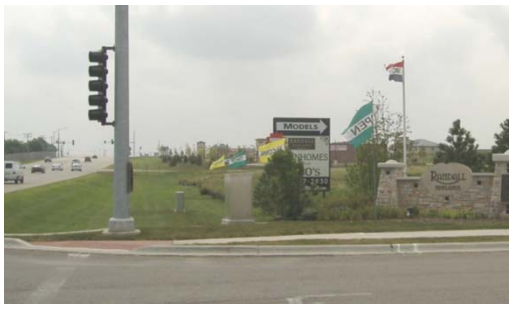
Delnor Health & Wellness

The Delnor Community Hospital Campus, located on the west side of Randall Road, between Keslinger Road and Williamsburg Avenue, provides a broad range of health services for residents of the Central Fox Valley. The Batavia Post Office on the northeast corner of Mill Street and Randall Road is a major area employer.

The corridor is developed most intensively north of Main Street. Between Main Street and Orchard-Mooseheart Roads there are large tracts of agricultural land. This includes the Mooseheart Farms which is part of the Mooseheart community, a home for children run by the Loyal Order of Moose. South of Orchard-Mooseheart Roads is a mix of existing uses and land currently under development.

The most common land use in the corridor is commercial, including retail, restaurants, theatre and banking. Strip malls are found on both sides of Randall Road from IL 38 to Main Street in Batavia. Major big-box retailers include Sam's Club, Target, Lowes, Meijer, Home Depot and Kohl's. The major grocery chains serving the Chicagoland market also can be found, including Jewel, Dominick's and Aldi. Most of these establishments are set back a considerable distance from Randall Road, with the area in between used for parking, as the photo below illustrates.

Industrial development is limited, but does include the Oberweis Dairy Plant north of I-88. There are other light industrial and warehousing uses along I-88 and local service roads perpendicular to Randall Road, although most would involve a relatively long walk from Randall Road. Some smaller industrial uses are located along the Union Pacific railroad on the west side of Randall, although the Randall Road grade separation makes them relatively inaccessible for pedestrians.



Entrance to model homes, Ritter St, North Aurora

Oberweis, Randall Rd north of I-88, North Aurora

Less visible in the corridor are residential uses, which are either located behind commercial land uses or are screened by fencing or vegetation. Most of the homes along the corridor are single-family residential. The Courtyards Apartment complex is south of Oak Street and construction of single-family and multi-family housing is occurring south of Orchard Road in North Aurora.

2.1 Pace Route 529

Route 529 is operated by the Pace Fox Valley Division which is based in North Aurora. Route 529 was extended north to the Randall Road corridor in October 2005. The route has a general north-south orientation, operating from Montgomery on the south, to the Aurora Transportation Center (transfers to other Pace Fox Valley routes and Metra BNSF service can be made), through downtown Aurora, via Aurora's north-northwest neighborhoods, and to the Randall Road corridor starting at Sullivan Road and terminating at the Kane County Judicial Center (See Figure 2.0.A). Northbound trips on Randall Road divert through the Delnor Hospital Campus in Geneva, with a stop at the Hospital's northeast entrance. Stops on Randall Road are marked by conventional Pace bus stop signage, but also include a passenger activated strobe light to alert drivers.

Figure 2.0.A. Route 529 and Other Transit Routes

Current Service

Weekday service starts early morning and continues into the evening (see Table 2.1.A). The last southbound trip from IL 38 and Randall is 9:00PM and the last northbound trip arrives at 8:58PM. Saturday service hours are somewhat shorter, with service beginning about an hour later than on weekdays (see Table 2.1.B). Although the Route 529 weekday evening and Saturday timetables indicate that the northern terminal is Randall/IL 38, buses on all trips layover and reverse direction at the Judicial Center. There is currently no service provided on Sunday.

Vehicle used on Route 529

Table 2.1.A Weekday Route 529 Randall Road-5th Street Timetable

Effective Date: October 24, 2005

Northbound						Southbound					
Settlers Landing	Aurora Transp. Center	Sullivan/ Randall	Randall/ Wilson	Randall/ IL 38	Kane Co. Judicial Center	Kane Co. Judicial Center	Randall/ IL 38	Randall/ Wilson	Sullivan/ Randall	Aurora Transp. Center	Settlers Landing
--	--	--	--	--	--	--	--	--	5:50 AM	6:08 AM	6:30 AM
--	--	--	--	--	--	--	--	--	6:50 AM	7:08 AM	7:30 AM
--	--	--	--	--	--	--	--	--	7:10 AM	7:40 AM	8:03 AM
6:30 AM	6:53 AM	7:16 AM	7:24 AM	7:34 AM	7:40 AM	7:45 AM	7:51 AM	8:01 AM	8:09 AM	8:40 AM	9:03 AM
7:30 AM	7:53 AM	8:16 AM	8:24 AM	8:34 AM	8:40 AM	8:45 AM	8:51 AM	9:01 AM	9:09 AM	9:40 AM	10:03 AM
8:30 AM	8:53 AM	9:16 AM	9:24 AM	9:34 AM	9:40 AM	9:45 AM	9:51 AM	10:01 AM	10:09 AM	10:40 AM	11:03 AM
9:30 AM	9:53 AM	10:16 AM	10:24 AM	10:34 AM	10:40 AM	10:45 AM	10:51 AM	11:01 AM	11:09 AM	11:40 AM	12:03 PM
10:30 AM	10:53 AM	11:16 AM	11:24 AM	11:34 AM	11:40 AM	11:45 AM	11:51 AM	12:01 PM	12:09 PM	12:40 PM	1:03 PM
11:30 AM	11:53 AM	12:16 PM	12:24 PM	12:34 PM	12:40 PM	12:45 PM	12:51 PM	1:01 PM	1:09 PM	1:40 PM	2:03 PM
12:30 PM	12:53 PM	1:16 PM	1:24 PM	1:34 PM	1:40 PM	1:45 PM	1:51 PM	2:01 PM	2:09 PM	2:40 PM	3:03 PM
1:30 PM	1:53 PM	2:16 PM	2:24 PM	2:34 PM	2:40 PM	2:45 PM	2:51 PM	3:01 PM	3:09 PM	3:40 PM	4:03 PM
2:30 PM	2:53 PM	3:16 PM	3:24 PM	3:34 PM	3:40 PM	3:45 PM	3:51 PM	4:01 PM	4:09 PM	4:40 PM	5:03 PM
3:30 PM	3:53 PM	4:16 PM	4:24 PM	4:34 PM	4:40 PM	4:45 PM	4:51 PM	5:01 PM	5:09 PM	5:40 PM	6:03 PM
4:30 PM	4:53 PM	5:16 PM	5:24 PM	5:34 PM	5:40 PM	5:45 PM	5:51 PM	6:01 PM	6:09 PM	6:32 PM	--
5:30 PM	5:53 PM	6:16 PM	6:24 PM	6:34 PM	--	--	6:40 PM	6:50 PM	6:58 PM	7:17 PM	--
6:30 PM	6:53 PM	7:16 PM	7:24 PM	7:34 PM	--	--	7:40 PM	7:50 PM	7:58 PM	8:17 PM	--
--	7:20 PM	7:40 PM	7:48 PM	7:58 PM	--	--	8:00 PM	8:10 PM	8:18 PM	8:37 PM	--
--	8:20 PM	8:40 PM	8:48 PM	8:58 PM	--	--	9:00 PM	9:10 PM	9:18 PM	9:37 PM	--

Table 2.1.B Saturday Route 529 Randall Road-5th Street Timetable

Effective Date: October 24, 2005

Northbound					Southbound				
Settlers Landing	Aurora Transp. Center	Sullivan/ Randall	Randall/ Wilson	Randall/ IL 38	Randall/ IL 38	Randall/ Wilson	Sullivan/ Randall	Aurora Transp. Center	Settlers Landing
					--	--	7:10 AM	7:40 AM	8:03 AM
7:30 AM	7:53 AM	8:13 AM	8:21 AM	8:31 AM	8:51 AM	9:01 AM	9:09 AM	9:40 AM	10:03 AM
8:30 AM	8:53 AM	9:13 AM	9:21 AM	9:31 AM	9:51 AM	10:01 AM	10:09 AM	10:40 AM	11:03 AM
9:30 AM	9:53 AM	10:13 AM	10:21 AM	10:31 AM	10:51 AM	11:01 AM	11:09 AM	11:40 AM	12:03 PM
10:30 AM	10:53 AM	11:13 AM	11:21 AM	11:31 AM	11:51 AM	12:01 PM	12:09 PM	12:40 PM	1:03 PM
11:30 AM	11:53 AM	12:13 PM	12:21 PM	12:31 PM	12:51 PM	1:01 PM	1:09 PM	1:40 PM	2:03 PM
12:30 PM	12:53 PM	1:13 PM	1:21 PM	1:31 PM	1:51 PM	2:01 PM	2:09 PM	2:40 PM	3:03 PM
1:30 PM	1:53 PM	2:13 PM	2:21 PM	2:31 PM	2:51 PM	3:01 PM	3:09 PM	3:40 PM	4:03 PM
2:30 PM	2:53 PM	3:13 PM	3:21 PM	3:31 PM	3:51 PM	4:01 PM	4:09 PM	4:40 PM	5:03 PM
3:30 PM	3:53 PM	4:13 PM	4:21 PM	4:31 PM	4:51 PM	5:01 PM	5:09 PM	5:40 PM	6:03 PM
4:30 PM	4:53 PM	5:13 PM	5:21 PM	5:31 PM	5:51 PM	6:01 PM	6:09 PM	6:32 PM	--
5:30 PM	5:53 PM	6:13 PM	6:21 PM	6:31 PM	6:40 PM	6:50 PM	6:58 PM	7:17 PM	--
6:30 PM	6:53 PM	7:13 PM	7:21 PM	7:31 PM	7:40 PM	7:50 PM	7:58 PM	8:17 PM	--
--	7:20 PM	7:40 PM	7:48 PM	7:58 PM	8:00 PM	8:10 PM	8:18 PM	8:37 PM	--
--	8:20 PM	8:40 PM	8:48 PM	8:58 PM	9:00 PM	9:10 PM	9:18 PM	9:37 PM	--

Table 2.1.C presents information on Route 529 length and scheduled travel time by segment. As this table reveals, scheduled speed of the segment along Randall Road and IL 38 is significantly faster than other portions of the route. The 22.8 mph scheduled speed for the northern leg of Route 529 is also 60% faster than Pace fixed route service overall (averaging 14.1 miles per hour).[1]

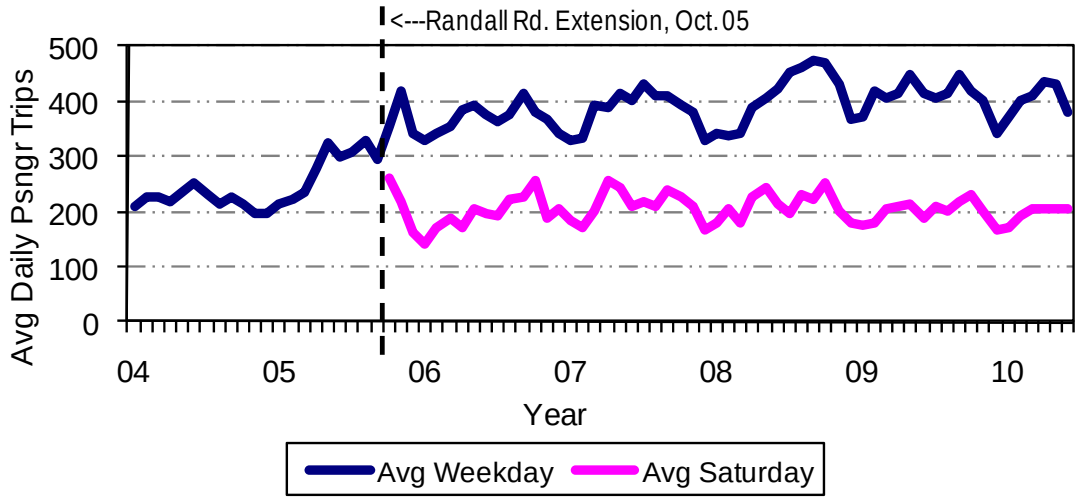
Table 2.1.C. Route 529 Length & Travel Time

Route Segment	Route Length (miles)	Travel Time (minutes)	Scheduled Speed (mph)
Settlers Landing - Aurora Transportation Center	4.6	21	13.1
Aurora Transportation Center - Sullivan Rd / Randall Rd	6.0	23	15.7
Sullivan Road / Randall Road - Judical Center	9.1	24	22.8
Total	19.7	68	
Average			17.4

Route 529 Ridership

Weekday ridership on Route 529 averaged 414 passenger trips per day during the April-June 2010 period, representing a 2% decrease from the same period of 2009. Saturday ridership averaged 207 trips in 2010, which was up 2% from 2009[2]. **Figure 2.1.A** provides a graph of average weekday and Saturday ridership[3] over time. Saturday service was introduced at the same time as the route extension along Randall Road. The data indicates a consistent ridership trough over the winter months, potentially attributable in part to the lack of transit infrastructure and access.

Figure 2.1.A Route 529 Average Daily Ridership



Stop Level

[1] Federal Transit Administration 2007 National Transit Database.

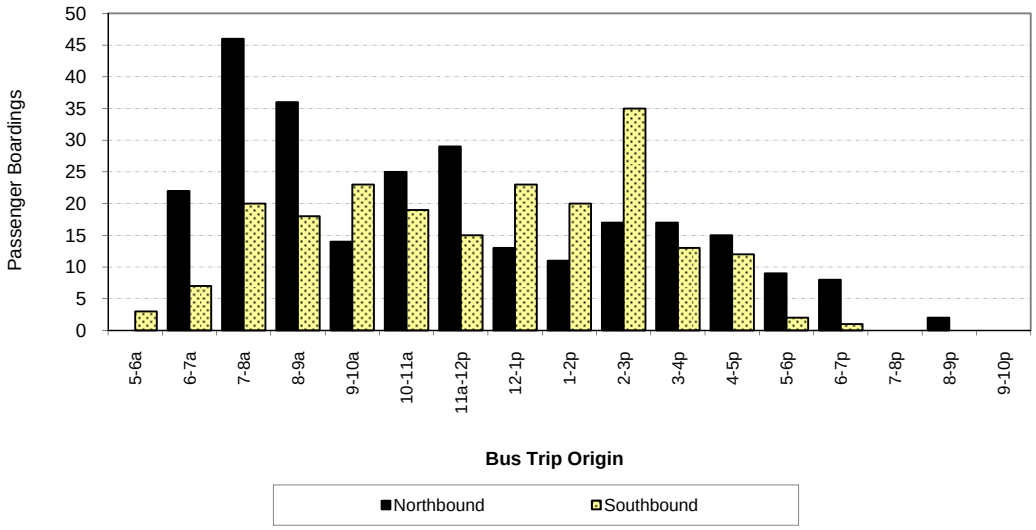
[2] Comprehensive Quarterly Service Review, Second Quarter 2010, Pace. August 2010.

[3] RTA RTAMS and Monthly Ridership Report, July 2010, Pace.

Ridership

Pace provided detailed passenger count data for Wednesday, September 9, 2009 based on automatic passenger counters equipped on the buses used for Route 529. A graph of passengers boarding by hour and direction is shown on **Figure 2.1.B**. This reveals that northbound travel was strongest in the AM peak while southbound was strongest in the late afternoon. Evening ridership was minimal for the period of extracted data.

Figure 2.1.B Route 529 Passenger Boardings by Hour and Direction



The extracted data for September 9, 2009 was also used to identify the level of passenger traffic by segment of Route 529. As shown on **Table 2.1.D**, traffic south the Aurora Transportation Center accounted for 28% of total trips. Passenger activity at the Transportation Center generated nearly one quarter of the route's ridership, which presumably included passengers transferring to/from other Pace routes and Metra. The route segment between Highland/Indian Trail and Highland/Sullivan included stops on and near the Provena Mercy Medical Center and other institutional uses (e.g., Thompson Rehabilitation Center, Highland Medical Center). This segment of the route had 17% of the Route 529's passenger activity. Passenger traffic north of Sullivan/Randall, which is the project study area, had 16% of all passenger activity along the route.

Table 2.1.D.Route 529 Passenger Activity by Segment
Count - Wednesday, September 9, 2009

	Northbound		Southbound		Total Ons & Offs both Directions	
Route 529 Segment	Ons	Offs	Ons	Offs		
Settler's Landing - Broadway/Spring	118	41	23	84	266	28%
Aurora Transportation Center	79	38	51	51	219	23%
Broadway/Spring - Illinois/Pennsylvania	19	20	12	33	84	9%
Illinois/Pennsylvania - Highland/Indian Trail	7	15	15	14	51	5%
Highland/Indian Trail - Highland/Sullivan	25	56	47	27	155	17%
Highland/Sullivan - Sullivan/Randall	3	5	7	1	16	2%
Sullivan/Randall - Randall/Wilson	3	10	0	2	15	2%
Randall/Wilson - Kane Co. Judicial Center	10	58	56	9	133	14%
Total	264	243	211	221	939	100%

SOURCE: Pace automated passenger counts.

Table 2.1.E presents counts of passengers boarding and alighting Route 529 buses at stops between Sullivan Road/Randall Road and the County Judicial Center. Of the combined boardings and alightings for both directions, the Judicial Center accounted for over one-third (i.e., 55 of 149) of this total. The stops near IL 38 and Randall Road generated 21% of the passenger activity (i.e., 32 of 149). Other stops accounted for a significantly lower percentage of passengers.

Table 2.1.E also shows the number of times Route 529 could potentially stop at each location (buses stop only when a passenger is present to board or asks to be dropped off). Relating this number to the sum of passenger boardings and alightings provides a measure of passenger productivity for each stop. As can be seen, most of the stop locations average less than one passenger per stop per day. These results emphasize the low level of passenger use on this segment of the route.

Table 2.1.E Route 529 Ridership by Stop, Sullivan Rd. - Judicial Center
Wednesday, September 9, 2009

Dir	No.	Street of Stop	Location	9-Sep-09 Ons	9-Sep-09 Offs	Possible No. of Stops	Psgrs per Possible Stop
SOUTHBOUND	1	--	CURBSIDE at Judicial Center	30	0	11	2.7
	2	IL 38	NEARSIDE in Right Turn Lane to SB Randall	11	6	15	1.1
	3	Randall	MIDBLOCK between Bricher Rd & Williamsburg Ave	0	0	15	0.0
	4	Randall	MIDBLOCK between Williamsburg Av & Keslinger Rd	0	0	15	0.0
	5	Randall	MIDBLOCK btwn Christina & Gleneagle	3	1	15	0.3
	6	Randall	FARSIDE at Mill St	2	2	15	0.3
	7	Randall	FARSIDE at McKee St	3	0	15	0.2
	8	Randall	FARSIDE at Wilson St	7	0	15	0.5
	9	Randall	FARSIDE at Orchard / Mooseheart Rd	0	1	15	0.1
	10	Randall	FARSIDE at Ritter St/Dogwood	0	0	15	0.0
	11	Randall	NEARSIDE at Oak St	0	1	15	0.1
	12	Randall	NEARSIDE 700ft north of Ice Cream Dr	0	0	15	0.0
	13	Sullivan	FARSIDE on EB east of Randall	0	0	15	0.0
			Southbound Total	**56**	**11**	**191**	**0.4**
NORTHBOUND	1	Sullivan	NEARSIDE on Sullivan east of Randall	1	0	15	0.1
	2	Randall	FARSIDE at Ice Cream Dr	0	1	15	0.1
	3	Randall	FARSIDE at Oak St	2	3	15	0.3
	4	Randall	FARSIDE at Ritter St/Dogwood	1	0	15	0.1
	5	Randall	FARSIDE at Main St	0	6	15	0.4
	6	Randall	FARSIDE at McKee St	1	1	15	0.1
	7	Randall	FARSIDE at Mill St	2	7	15	0.6
	8	Randall	MIDBLOCK between Fabyan Pkwy and Gleneagle Dr	2	7	15	0.6
	9	Randall	FARSIDE at Christina Ln	1	2	15	0.2
	10	Keslinger	FARSIDE on Keslinger west of Randall	0	0	15	0.0
	11	Delnor Dr.	CURBSIDE at Delnor Hosp NE Entrance	1	4	15	0.3
	12	IL 38	FARSIDE 1000ft west of Randall	3	12	15	1.0
	13	--	CURBSIDE at Judicial Center	0	25	11	2.3
			Northbound Total	**14**	**68**	**191**	**0.4**

Fares

The base adult fare for Route 529 is $1.75. The fare for reduced fare passengers is $0.85. Reduced fares are available to riders:

- 65 years of age and older presenting valid RTA Reduced Fare Card. A medicare card along with another source of identification with a photograph and a date of birth is acceptable to obtain the RTA reduced fare card.
- Riders with disabilities, regardless of age, presenting either a current RTA Temporary Reduced Fare Card or an RTA Permanent Reduced Fare Card.
- High school, junior high and grammar school students 12 through 20 years of age presenting a valid CTA Student Riding Permit, Pace Permit or valid school I.D. between 6:00 A.M. and 8:00 P.M. only on school days for purposes of travel to and from classes, work/study programs, and on-campus extracurricular activities during these times.
- 7 through 11 years of age.

Certain riders are eligible for free fares, including:

- Children under age 7, when accompanied by a fare-paying adult rider.
- Police officers in full uniform; if not in full uniform, they must present their star or badge with their current police identification card.
- 65 years of age and older and a resident of the six county RTA region (Cook, Lake, Kane, Will, McHenry and DuPage Counties) presenting a valid RTA Senior Ride Free Permit may ride Pace Fixed Route Service free of charge.
- Passengers with Disabilities presenting a RTA Ride Free Circuit Permit.
- Active Military Personnel in uniform.

The route has a Two-Tier Local Transfer Zone system. Transfers that take place within one Local Transfer Zone are free. Transfers that take place in two zones involve a transfer fee of $0.25 ($0.15 for reduced-fare riders). The Route 529 Local Transfer Zone boundary is Mooseheart Road in North Aurora. A variety of multi-ride and passes are available to riders. **Table 2.1.F** presents Route 529 ridership for the second quarter of 2009 by type of fare.[4] Data is also broken down between Weekday and Saturday.

Table 2.1.F Pace Route 529 April-June 2009 Passenger Trips by Fare Type

	Weekday				Saturday			
Fare Type	Full-Fare	Reduced Fare	Total	% of Total	Full-Fare	Reduced Fare	Total	% of Total
Cash Fares	9,034	2,079	11,113	43%	1,026	55	1,081	43%
Cash Fares + Transfer	2,400	162	2,562	10%	265	8	273	11%
Passes	318	52	370	1%	22	0	22	1%
10 Ride	2,441	249	2,690	10%	207	4	211	8%
Free	12	4,469	4,481	17%	2	458	460	18%
Transfers	4,587	184	4,771	18%	485	2	487	19%
Total Rides	18,792	7,195	25,987	100%	2,007	527	2,534	100%
Estimated Revenue			$24,306				$2,341	
Avg Revenue per Ride			$0.94				$0.92	

[4] E-Mail from Michael Bohm, Section Manager, Service Analysis, Pace Route Revenue per Rider 2nd Quarter 2009, sent August 6, 2010.

Service Performance

Statistics on Route 529 operating, passenger productivity and financial performance are provided on **Table 2.1.G**. This information is drawn from a comprehensive route-level service review prepared quarterly by Pace.[5]

Table 2.1.G reveals that Route 529's weekday productivity performance of 11.9 passengers per revenue hour ranked 38 among the 44 Pace routes classified as Intra-Community. This rate of productivity was above Pace's minimum weekday standard of 10.3 passengers per revenue hour. However, the weekday farebox recovery ratio of 14% was below Pace's minimum recovery ratio of 18%. During this same time period, Saturday productivity of 7.3 passengers per revenue hour was below Pace's minimum Saturday service standard of 9.2 passengers. Due to the comparatively poor productivity, Pace proposed elimination of Route 529 Saturday service in 2009 as part of their 2010 budget process. This proposal was later rescinded.

Table 2.1.G Route 529 April-June, 2010 Performance

	Weekday	Saturday
Average Daily Ridership		
2009	424	204
2010	414	207
% Change	-2%	1%
2010 Operating Data		
Vehicle Miles	544.3	489.6
Revenue Miles	526.9	457.4
Vehicle Hours	40.5	36.8
Revenue Hours	34.7	28.3
2010 Psngr. Productivity		
Psngrs. per Rev. Hour	**11.9**	**7.3**
Psngrs. per Rev. Mile	0.79	0.45
2010 Financial Data		
Est. Daily Cost	$2,800	$2,542
Est. Daily Revenue	$389	$190
2010 Financial Performance		
Cost per Passenger	$6.76	$12.28
Cost per Revenue Hour	$80.81	$89.92
Cost per Vehicle Mile	$5.14	$5.19
Subsidy per Rider	$5.82	$11.36
Farebox Recovery Ratio	14%	7%
2010 Comparative Productivity		
Intra-Community Routes	44	36
Intra-Community Syst Avg	**20.6**	**18.4**
Route 529 Rank	38	34

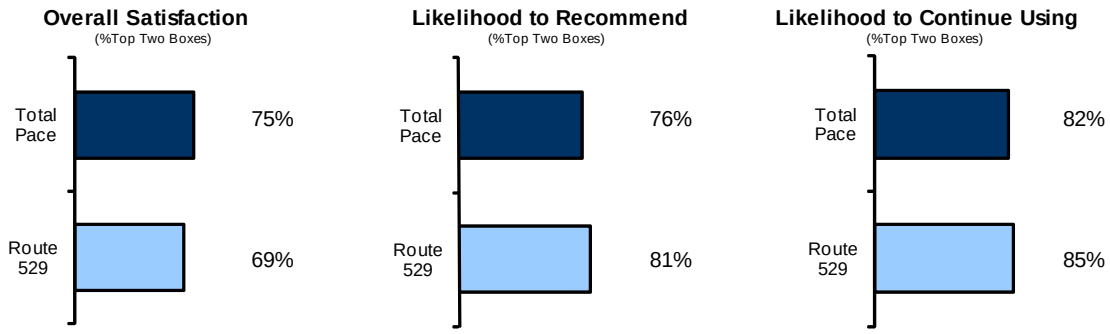
[5] Comprehensive Quarterly Service Review, Second Quarter 2010, Pace. August 2010.

Rider Satisfaction

In 2007, Pace conducted an on-board survey to determine the level of satisfaction of Route 529 riders. Results are presented on **Figure 2.1.C.**[6] The survey revealed that overall satisfaction of Route 529 riders is somewhat lower than for Pace overall (69% versus 75%). Survey respondents were queried on a number of aspects of service, and on whether they would recommend use of the service to others. Of the 23 attributes evaluated, Availability of Bus Shelters was the lowest rated passenger amenity, with 54% of riders agreeing or agreeing strongly. The survey results also indicate that Route 529 riders traveling for reasons other than work or school (e.g., medical, shopping, personal business) account for significantly higher percentages than for Pace overall.

[6] E-mail from Dan Dembinski, Service Planner, Pace, August 3, 2009.

Figure 2.1.C 2007 Customer Satisfaction Survey Report
Route 529 Randall Road – 5th Street (n=76)



	% Top 2 Box	Better/(Worse) than Pace Average
On Time Performance		
Buses running on time	65%	3
Transfers	67%	4
Accuracy of schedule & route info.	73%	(1)
Bus Environment		
Cleanliness inside buses	(83%)	9
Comfort on bus (temp, noise, seats)	73%	5
Buses in good working order	(87%)	11
Personal space on the bus	77%	5
Personal safety on the bus	86%	5
Navigating the System		
Schedule & route information available	72%	2
Understanding schedules & routes	82%	0
Ease of fare payment	81%	(3)
Other Service Components		
Pace customer service	74%	2

	% Top 2 Box	Better/(Worse) than Pace Average
Meeting Basic Needs		
Distance to nearest bus stop	68%	(8)
Total travel time	(80%)	10
Service avail. to place I need to go	72%	1
Service available when I need it	65%	4
Driver		
Driver's willingness to assist me	83%	4
Driver courtesy	83%	3
Driver's safe driving	83%	0
Driver obeys & enforces rules	79%	(1)
Personal safety at bus stops	70%	(5)
Convenience Prior to Boarding		
Availability of bus shelters	54%	3
Notification of service changes	67%	2
Schedule Coord (CTA/ Metra)	71%	8
Value of service for fare paid	76%	(2)

Rider Characteristics

		Route 529	Above/(Below) Pace Average
New Riders (less than one year)		14%	0
Veteran Riders (more than 10 years)		28%	0
Choice Riders		[13%]	(14)
Average length of typical trip (min.)		34.6	(1)
Bus stop within 1/4 mile from home		46%	6
Transfers:	None	[18%]	(26)
	1-2	(74%)	26
	3+	8%	0
Ride on:	Weekdays	100%	2
	Saturday	(64%)	20
	Sunday	[4%]	(19)
	Peak hours only	29%	(6)
	Off-peak hours only	21%	2
	Peak & off-peak hours	49%	3

		Route 529	Above/(Below) Pace Average
Trip Purpose:	Work	74%	(6)
	School	11%	(3)
	Relative/friend	(41%)	18
	Medical/Dental	(50%)	26
	Shopping/Restaurant	(63%)	24
	Personal business	(47%)	20
	Recreation	(30%)	12
	Airport	1%	(4)
Age (years):	<18	4%	1
	18 to 24	4%	(5)
	25-44	31%	(5)
	45-64	49%	3
	65+	(12%)	6

(oval) / [rectangle] Indicate significantly higher/lower than the Total Pace Average at 90% confidence level.
* Use caution, the sample size is very small.

In July 2008, Pace undertook an extensive marketing effort on 9 different routes, one of which was 529.[7] That effort included the following activities:

- An outdoor billboard at Route 31/Gray Avenue in Geneva (4 weeks)
- Moving billboard up/down Randall (2 days/week for 4 weeks)
- Door-hanger ads on all residences within ¼ mile of the route (2 times)
- Shared mail ads to all households within 1 mile of the route (2 times)
- Chicago Tribune inserts to subscribers in Geneva, Aurora, N. Aurora (4 times, 4 weeks)
- Ads in Kane County Chronicle (2 times) and Aurora Beacon-News (4 times)

All ads were a variation on the image shown as **Figure 2.1.D**. Results of the marketing campaign are assumed to have been not been significant given that ridership did not change appreciably.

[7] E-Mail from Douglas Sullivan, Department Manager, Marketing, Pace, August 24, 2009.

Figure 2.1.D Route 529 Marketing Advertisement

2.2 Corridor Socio-Economics

Data on population, households, and employment[8] were obtained from the Chicago Metropolitan Agency for Planning (CMAP) at the quarter-section level of geography (i.e., ½-mile x ½-mile square). The dataset included inputs from the most recent Air Quality Conformity Analysis completed in the first quarter of 2009. The analysis years for the conformity run were 2010, 2020 and 2030. Data for 2010 is considered the base year. Data are presented by quarter section in **Figures 2.2.A and 2.2.B**, including population and employment, respectively. The Route 529 alignment has been superimposed on the zones.

[8] Claire Bozic, Air Quality Conformity Analysis Data Description, Chicago Metropolitan Agency for Planning, June 18, 2009.

Figure 2.2.A. Population by Quarter-Section

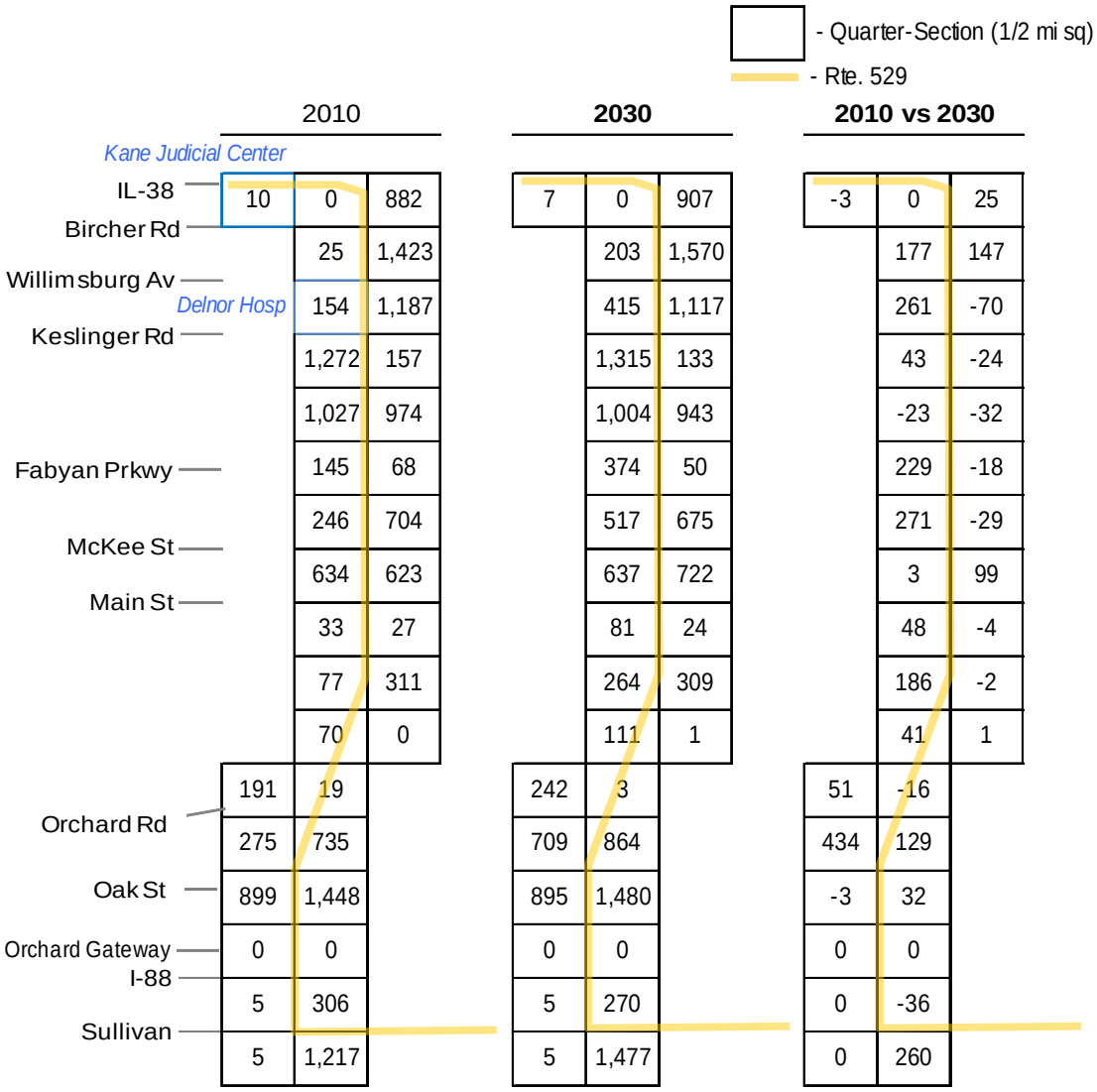


Figure 2.2.B Employment by Quarter-Section

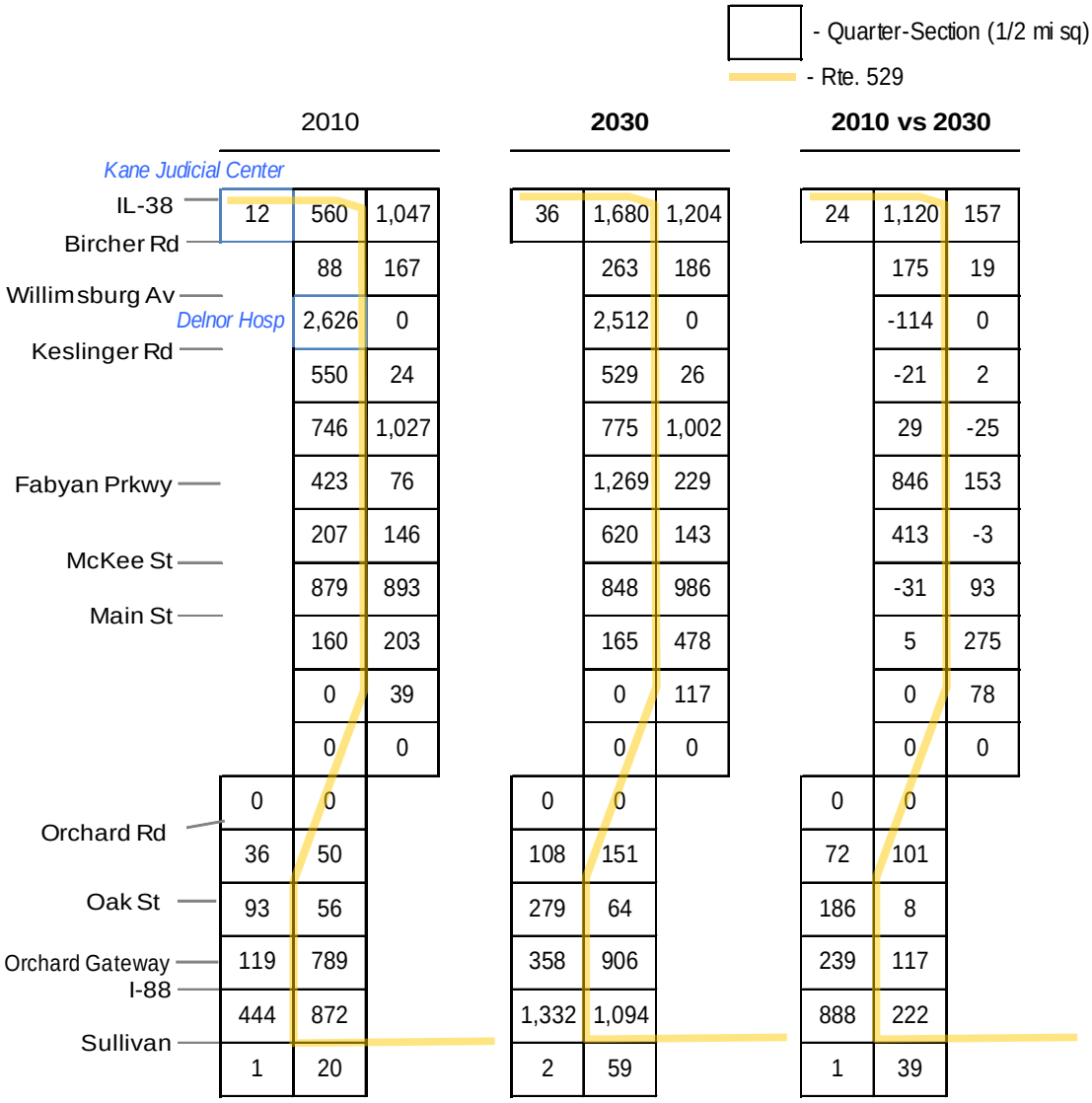


Table 2.2.A provides a summary of the Randall Road Corridor socio-economic statistics adopted in 2006. As indicated, total employment is projected to grow at a rate three times greater than population or households (41% versus 14%). A third of the jobs in the Corridor are in the retail sector, which is significantly higher than for all of Kane County (16%) and the six-county Northeastern Illinois region (14%).

The corridor, defined by these 35 quarter-sections, represents an area that is 8.8 square miles in size. Thus, expressing the socio-economic data on a square mile basis indicates that the population density will approach an average of 2,000 people per square mile in 2030. Pace's Development Guidelines[9] suggest that areas with less than 4,000 people per square mile are often not conducive to traditional transit.

Table 2.2A Route 529 Randall Road Corridor Socio-Economics

				10vs30	
	2010	2020	2030	Change	%Chng
Square Miles	8.78	8.78	8.78		
Population	15,149	16,193	17,326	2,177	14%
Households	5,289	5,666	6,046	757	14%
Retail Employment	4,046	4,683	5,312	1,266	31%
Total Employment	12,353	14,887	17,421	5,068	41%
% Retail Employment	33%	31%	30%		
Population Density	1,725	1,844	1,973		
Employment Density	1,407	1,696	1,984		

2.3 Commuting Patterns

As a way of understanding the pattern of work travel in the Route 529 Randall Road Corridor, an analysis of 2000 Census data was completed. The Census Transportation Planning Package (CTPP) is a special tabulation of the decennial U.S. Census for transportation planners. It contains detailed tabulations on the characteristics of workers at their place of residence, at their place of work, and on work trip flows between home and work. The data used in this analysis was drawn from the RTA's Regional Transportation Asset Management System[10] (RTAMS), which provides planning and financial information on the transportation system in the northeastern Illinois area surrounding Chicago.

Data are provided by traffic analysis zone (TAZ), which is a special area delineated for tabulating traffic-related data. A TAZ usually consists of one or more census blocks, block groups, or census tracts. **Figure 2.3.A** shows the 25 TAZs related to the Route 529 Randall Road Corridor.

It should be noted that the 2000 Census data reflects conditions prior to the 2005 extension of Route 529 service to Randall Road. Therefore, any influence that the Route 529 service expansion may have had to the origin-destination pattern of travelers in not reflected. While it will be important to keep this in mind when reviewing the information presented, it is believed that the results reflect the general pattern of current work travel for the area.

[9] Taqhi Mohammed, Transportation Engineer, Development Guidelines, Pace, November 1999.

[10] Regional Transportation Asset Management System, on-line system at www.rtams.org.

Figure 2.3.A Randall Road Corridor Census Transportation Analysis Zones

Route 529

XXXX - Census Transportation Analysis Zone (TAZ)

Route 529 Corridor

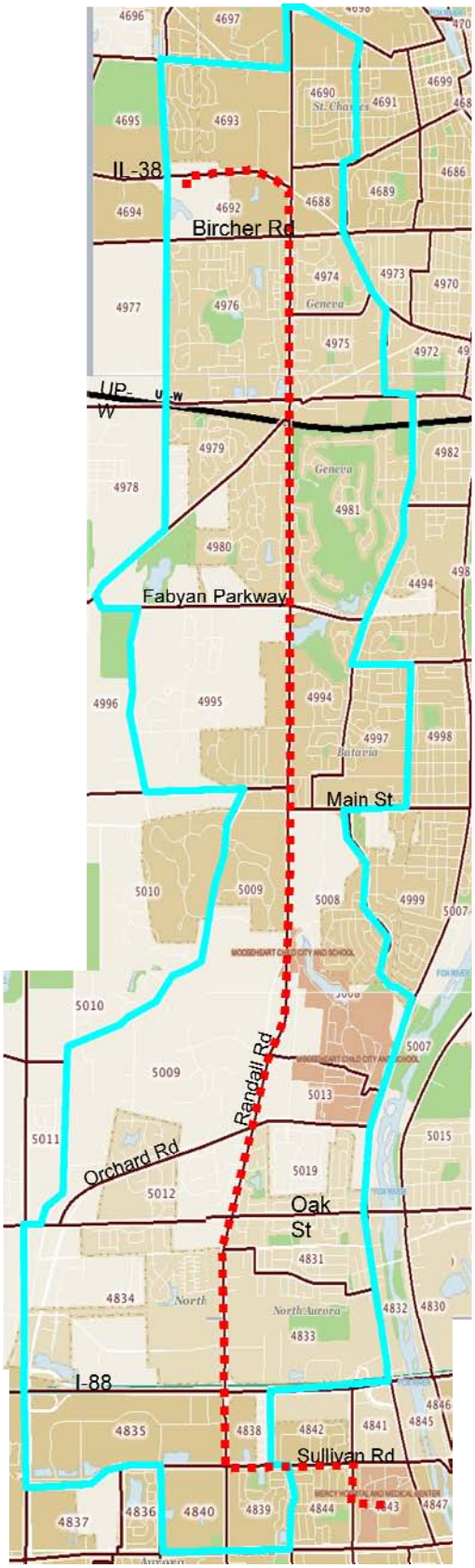


Table 2.3.A presents results at the cumulative TAZ level, combining all Corridor residents and workers. Of corridor residents, 55% were employed in Kane County work locations and 27% worked in DuPage County. Over 400 residents worked in Chicago's downtown, which may suggest a need for bus links to Metra stations. Of Corridor workers, 66% were residents of Kane County.

Table 2.3.A Route 529 Randall Road Corridor 2000 Census Work Flows

A. Work Destinations of Corridor Residents			**B.** Residence Origins of Corridor Workers		
Area	Number	Percent	Area	Number	Percent
Kane County	7,046	54.9%	Kane County	8,529	66.4%
DuPage County	3,447	26.8%	DuPage County	1,384	10.8%
Suburban Cook County	953	7.4%	Kendall County	761	5.9%
Chicago Central Area	427	3.3%	Dekalb County	688	5.4%
Chicago outside Downtown	260	5.3%	Suburban Cook County	423	3.3%
All Other Areas	171	1.3%	Will County	269	2.1%
Will County	132	1.0%	McHenry County	224	1.7%
Dekalb County	123	1.0%	All Other Areas	222	1.7%
Kendall County	116	0.9%	Chicago outside Downtown	167	1.4%
Lake County	82	0.6%	LaSalle County	135	1.1%
McHenry County	78	0.6%	Lake County	38	0.3%
LaSalle County	8	0.1%	Chicago Central Area	9	0.1%
Total	12,843	100.0%	Total	12,849	100.0%

Table 2.3.B presents the top ten townships for travel by both Randall Road Corridor residents (origins) and workers (destinations). The top three townships are served by Route 529, including Geneva/Batavia in the center (20%), Aurora on the south (16%) and St. Charles on the north-end of the Corridor (14%). All three townships combined accounted for ½ of all Corridor work travel to and from the Randall Corridor in 2000. This finding suggests a potential work trip market for Route 529 service. It is believed that recommendations presented later in the report to improve access to the Randall Road service could tap into this potential.

Table 2.3.B Top 10 Randall Road Work Flow Townships

Rank	County	Township	Work Destinations of Corridor Residents	Residence Origins of Corridor Workers	Total Origins and Destinations	% of All Residents & Wokers
1	Kane	Geneva/Batavia	2,761	2,450	5,211	20%
2	Kane	Aurora	1,692	2,295	3,987	16%
3	Kane	St. Charles	1,773	1,735	3,508	14%
4	Kane	Elgin	443	549	992	4%
5	DuPage	Naperville	611	336	947	4%
6	DuPage	York	612	82	694	3%
7	DuPage	Winfield	344	321	665	3%
8	DuPage	Lisle	488	127	615	2%
9	DuPage	Milton	399	198	597	2%
10	Kendall	Oswego	55	485	540	2%

3.0 Existing Infrastructure Conditions

3.1 Roadway Characteristics

Pace Route 529 runs along Randall Road through the majority of the study area. Randall Road (Kane County Highway 34) is a major north-south thoroughfare and Strategic Regional Arterial (SRA). **Table 3.1.A** breaks downs the existing cross sectional characteristics of Randall Road for segments (from the south to the north) within the study area.

Table 3.1.A Existing Roadway Cross Section: Randall Road

		Lanes			
From	To	NB	SB	Median	Shoulder
Sullivan Rd	Sequoia Dr	1	1	none	aggregate 0-5'
Sequoia Dr	I-88	1	1	none	aggregate 3-5', guardrail
I-88 Bridge		1	1	none	3' bituminous, 5' concrete walk
I-88	Ice Cream Dr	1	1	none	3-8' bituminous, guardrail
Ice Cream Dr	s/o Staghorn Ln	1	1	none	8-9' bituminous
s/o Staghorn Ln	Oak St	2	2	12' painted	8-9' bituminous
Oak St	Comiskey Ave	2	2	> 12' painted	8-9' bituminous
Comiskey Ave	Ritter St/Dogwood Dr	2	2	12' painted	8-9' bituminous
Ritter St/Dogwood Dr	Orchard Rd	2	2	16' painted	8-9' bituminous
Orchard Rd	Heritage Dr	2	2	6-12' painted	8-9' bituminous
Heritage Dr	Main St	2	2	6-12' painted	8-9' bituminous
Main St	Wilson St	2	2	18-20' painted	8-9' bituminous
Wilson	McKee St	2	2	18-20' painted	8-9' bituminous
McKee St	Mill St	2	2	18-20' painted	8-9' bituminous
Mill St	South Dr	2	2	18-20' painted	8-9' bituminous
South Dr	Fabyan Pkwy	2	2	8-20' barrier	8-9' bituminous
Fabyan Pkwy	Gleneagle Dr	2	2	6' painted/20' barrier	8-9' bituminous
Gleneagle Dr	Christina Ln	2	2	16-18' painted	8-9' bituminous
Christina Ln	Fargo Blvd	2	2	16-18' painted	8-9' bituminous
Fargo Blvd	Keslinger/Kaneville Rd	2	2	6' painted	8-9' bituminous, guardrail
Keslinger/Kaneville Rd	Williamsburg Ave	2	2	8' painted/20' barrier	8-9' bituminous
Williamsburg Ave	Bircher Rd	2	2	10-20' barrier	8-9' bituminous
Bricher Rd	IL 38	2	2	4' barrier	none (turn lanes)

As described in the table, Randall Road provides two travel lanes in each direction with a landscape or painted median separating directions of travel and 8-9' bituminous shoulders on either side through most segments within the study area. Due to the rural nature along some of the stretches along the corridor (from Bricher to Main Street), typical cross section contains large open drainage ditches adjacent to travel lanes. South of Oak Street near Staghorn Lane, Randall Road drops to a single lane in each direction with no median and reduced shoulders.

Currently, Randall Road carries around 40,000 vehicles per day within the study area. Annual Average Daily Traffic (AADT) data collected by Kane County for segments served by Pace Route 529 are summarized in **Table 3.1.B,** separated by year. As an SRA route, future plans have Randall Road eventually being widened to a six-lane section.

Table 3.1.B Existing Traffic Counts: Randall Road

From	To	Year	NB veh/day	SB veh/day	Total veh/day
Fabyan Pkwy	McKee St	2008	18,207	19,076	37,300
Keslinger Rd	Bricher Rd	2008	18,442	18,561	37,000
Fabyan Pkwy	Keslinger Rd	2008	20,350	20,777	41,100
Fabyan Pkwy	Keslinger Rd	2006	19,900	19,700	39,600
Fabyan Pkwy	Mill St	2005	19,100	19,300	38,400
Chrstina Ln	Fargo Blvd	2005	19,238	19,689	38,900
Keslinger Rd	Bircher Rd	2004	16,670	16,993	33,700
Bricher Rd	IL 38	2004	14,505	15,067	29,600
Main St	Fabyan Pkwy	2003	22,761	22,930	45,700

3.2 Bus Stop Characteristics

Pace Route 529 currently provides 13 stops in each direction between the Kane County Judicial Center and the intersection of Randall Road with Sullivan Road. Stop spacing along the route varies from ¼ mile to 2 ¼ miles, with typical spacing of less than a mile through the more populated areas of the route.

In relation to signalized intersections, stops are located either near-side (immediately prior to the intersection), far-side (just beyond the intersection) or mid-block. The majority of stops (14 out of 26) are located far-side. This generally agrees with the Pace Development Guidelines (Section V.B) which recommend the use of far-side stops where right-turn auxiliary lanes are present and for easier re-entry into the traffic stream for buses. The Illinois Department of Transportation's Bureau of Design and Environment Manual also prefers the use of far-side stops (58-3.01a). There are two major destinations along the route that receive curb-side service: the Kane County Judicial Center which serves as the northern terminus of the route, and Delnor Hospital which has a curb-side stop in only the northbound direction of the route.

Tables **3.2.A** and **3.2.B** provide an inventory of existing Pace Route 529 stops describing the general location, estimates of the distances between, and some of the major destination points served by each stop.

Table 3.2.A Existing Pace Route 529 Bus Stops - Southbound

Southbound Stop Information								
No.	Dir	Street of Stop	Location	mile marker	dist to next stop south	dist to next stop north	Major Uses Served	Stop Description
1	SB	--	CURBSIDE at Kane County Judicial Center	0.00	0.90	--	Courthouse	In Kane County Judicial Center parking lot.
2	SB	IL 38	NEARSIDE in EB Right Turn Lane from IL 38 to SB Randall Rd	0.90	1.00	0.90	Fairgrounds; Meijer's; shopping	Pace sign with beacon planted roadside adjacent to sidewalk.
3	SB	Randall Road	MIDBLOCK between Bricher Rd & Williamsburg Ave	1.20	0.30	1.00	Geneva Commons shopping center	Pace sign planted roadside in the grass. Bus pulls off onto regular shoulder without turnout.
4	SB	Randall Road	MIDBLOCK between Williamsburg Ave & Keslinger Rd	1.90	1.20	1.00	Delnor Hospital Campus	Pace sign planted roadside in the grass. Bus pulls off onto regular shoulder without turnout.
5	SB	Randall Road	MIDBLOCK between Christina Ln & Gleneagle Dr	3.10	0.80	1.20	Shopping; restaurants	Pace sign planted roadside in the grass. Bus pulls off onto regular shoulder without turnout.
6	SB	Randall Road	FARSIDE at Mill St	3.90	0.30	0.80	Shopping; restaurants; Batavia Post Office; theatre	Pace sign planted roadside in the grass. Bus pulls off onto regular shoulder without turnout.
7	SB	Randall Road	FARSIDE at McKee St	4.20	0.30	0.30	Shopping	Pace sign planted roadside in the grass. Bus pulls off onto regular shoulder without turnout.
8	SB	Randall Road	FARSIDE at Wilson St	4.50	2.25	0.30	Shopping	Pace sign planted roadside in the grass. Bus pulls off onto regular shoulder without turnout.
9	SB	Randall Road	FARSIDE at Orchard/ Mooseheart Rd	6.75	0.25	2.25	None apparent	Pace sign planted roadside in the grass. Bus pulls off onto regular shoulder without turnout.
10	SB	Randall Road	FARSIDE at Ritter St/ Dogwood Dr	7.00	0.45	0.25	Existing subdivision to the east, new development to the west	Pace sign planted roadside in the grass. Bus pulls off onto regular shoulder without turnout.
11	SB	Randall Road	NEARSIDE at Oak St	7.45	0.55	0.45	Minor existing and future development	Pace sign affixed to light pole. Bus pulls off onto regular shoulder without turnout.
12	SB	Randall Road	MIDBLOCK north of Ice Cream Dr	8.00	0.80	0.55	Oberweis (some distance); Target, Best Buy to west (over 1 mile away)	Pace sign planted roadside in the grass. Bus pulls off onto regular shoulder without turnout.
13	SB	Sullivan Road	FARSIDE on EB Sullivan Rd east of Randall Rd	8.80	--	0.80	Illinois Math & Science Academy; residential (some distance)	Pace sign planted roadside in the grass. Bus pulls off onto regular shoulder without turnout.

Table 3.2.B Existing Pace Route 529 Bus Stops - Northbound

Northbound Stop Information								
No.	Dir	Street of Stop	Location	mile marker	dist to next stop south	dist to next stop north	Major Uses Served	Stop Description
1	NB	Sullivan Road	NEARSIDE on WB Sullivan Rd east of Randall Rd	9.10	--	0.75	Illinois Math & Science Academy; residential (some distance)	Pace sign planted roadside in the grass. Bus pulls off onto regular shoulder without turnout.
2	NB	Randall Road	FARSIDE at Ice Cream Dr	8.35	0.75	0.60	Oberweis; Target, Best Buy to west (over 1 mile away)	Pace sign planted roadside in the grass. Bus pulls off onto regular shoulder without turnout.
3	NB	Randall Road	FARSIDE at Oak St	7.75	0.60	0.50	Minor existing and future development	Pace sign planted roadside in the grass. Bus pulls off onto regular shoulder without turnout.
4	NB	Randall Road	FARSIDE at Ritter St/ Dogwood Dr	7.25	0.50	2.25	Existing subdivision to the east, new development to the west	Pace sign planted roadside in the grass. Bus pulls off onto regular shoulder without turnout.
5	NB	Randall Road	FARSIDE at Main St	5.00	2.25	0.50	Shopping and restaurants to the north	Pace sign planted roadside in the grass. Bus pulls off onto regular shoulder without turnout.
6	NB	Randall Road	FARSIDE at McKee St	4.50	0.50	0.30	Shopping	Pace sign planted roadside in the grass. Bus pulls off onto regular shoulder without turnout.
7	NB	Randall Road	FARSIDE at Mill St	4.20	0.30	0.50	Shopping; restaurants; Batavia Post Office; theatre	Pace sign planted roadside in the grass. Bus pulls off onto regular shoulder without turnout.
8	NB	Randall Road	MIDBLOCK between Fabyan Pkwy and Gleneagle Dr	3.70	0.50	0.40	Shopping; residential to east	Pace sign planted roadside in the grass. Bus pulls off onto regular shoulder without turnout.
9	NB	Randall Road	FARSIDE at Christina Ln	3.30	0.40	0.75	Shopping; residential to east	Pace sign planted roadside in the grass. Bus pulls off onto regular shoulder without turnout.
10	NB	Keslinger Road	FARSIDE on WB Keslinger Rd west of Randall	2.55	0.75	0.55	Delnor Hospital Campus	Pace sign planted roadside in the grass. Bus pulls off onto regular shoulder without turnout.
11	NB	Delnor Dr.	CURBSIDE at Delnor Hospital at North entrance	2.00	0.55	1.10	Delnor Hospital Campus	In Delnor Hospital parking lot.
12	NB	IL 38 Lincoln Highway	NEARSIDE 1000ft west of Randall	0.90	1.10	0.90	Fairgrounds; Meijer's; shopping	Pace sign mounted to light pole. Bus must stop in the travel lane.
13	NB	--	CURBSIDE at Kane County Judicial Center	0.00	0.90	0.00	Courthouse	In Kane County Judicial Center parking lot.

3.3 Existing Signal Systems and Traffic Performance

The Pace Route 529 passes through 18 signalized intersections while on Randall Road, with an additional signalized intersection on IL 38 at the Meijer parking lot which is the north end of the route. Signalized intersections along the route are listed in **Table 3.3.A**. For many of the turning movements off Randall Road from the Northbound or Southbound direction, an auxiliary lane is provided which allows a turning vehicle to get out the way of through traffic while awaiting an opportunity to execute the turn. As shown in the table, all signalized intersections within the study limit provide left turn auxiliary lanes from Randall Road. Right turn auxiliary lanes are provided off Randall Road for most signalized intersections, with a few instances where right turns must be executed from the outermost through lane.

Table 3.3.A. Existing Signalized Intersections on Randall Road

	Auxiliary Lanes	
Cross Street	Left Turn	Right Turn
Sullivan Road	All	None
Ice Cream Drive	All	SB, EB
Oak Street	All	None
Comiskey Avenue	NB (T-Intersection)	SB, EB
Ritter St/Dogwood Dr	All	None
Orchard Road	All (EB dual)	SB, EB
Main Street	All	NB, SB, EB
Wilson Street	All	NB, SB, EB
McKee Street	All	All
Mill St	All	NB, SB, EB
Fabyan Parkway	All (dual)	All
Gleneagle Drive	All	All
Christina Lane	All	All
Fargo Boulevard	All	NB, SB
Keslinger/Kaneville Road	All	NB, SB, EB
Williamsburg Avenue	All (NB, EB dual)	NB, SB, EB
Bricher Road	All (NB, EB dual)	NB, SB, EB
IL 38	All (dual)	All
Meijer Parking Lot (IL 38)	NB, EB, WB	NB

To assist with the preparation of this study, Kane County provided Synchro/SimTraffic signal timing and coordination networks to identify the existing signal timing schemes applied at traffic signals during the AM and PM peak hours as well as the midday and Saturday. These networks represented the most congested portion of Pace Route 529 along the northern end from IL 38 to Main Street.

Several intersections on the route are outside the jurisdiction of Kane County, including:

- Randall Road and Sullivan Road (City of Aurora)
- Randall Road and Ice Cream Drive (Village of North Aurora)
- Randall Road and Oak Street (Village of North Aurora)
- Randall Road and Comiskey Avenue (Village of North Aurora)
- Randall Road and Dogwood Drive (Village of North Aurora)
- Illinois Route 38 and Meijer Entrance (Illinois Department of Transportation)

Table 3.3.B lists the signalized intersections included in the Kane County Synchro/SimTraffic network and identifies the proportion of overall green time assigned to Randall Road during AM and PM peak hours. The G/C ratio is simply the amount of available green time in seconds dedicated to a particular movement divided by the total amount of time for each complete signal cycle in seconds. As noted in the table, Randall Road typically gets the majority of green time for each signal with exceptions to some of the major intersections like Fabyan Parkway, Main Street, and Keslinger Road. On the table, the G/C ratio is provided for the northbound left turn and southbound right turn movements as these represent the movements that the Pace Route 529 would need to make.

Table 3.3.B Existing Signalized Intersections on Randall Road – G/C Ratio

		G/C Ratio			
		AM		PM	
Cross Street	Phasing	NB	SB	NB	SB
Main Street	Protected/Permitted	0.55	0.53	0.57	0.48
Wilson Street	Protected/Permitted	0.68	0.74	0.56	0.63
McKee Street	Protected/Permitted	0.7	0.68	0.61	0.59
Mill St	Protected/Permitted	0.83	0.8	0.62	0.59
Fabyan Parkway	Protected	0.46	0.5	0.49	0.53
Gleneagle Drive	Protected/Permitted	0.74	0.72	0.67	0.65
Christina Lane	Protected/Permitted	0.87	0.89	0.74	0.64
Fargo Boulevard	Protected/Permitted	0.57	0.61	0.48	0.53
Keslinger/Kaneville Rd	Protected/Permitted	0.55	0.42	0.57	0.44
Williamsburg Avenue	Protected	0.67	0.65	0.68	0.62
Bricher Road	Protected	0.64	0.66	0.6	0.55
IL 38 [1]	Protected w/ RT Overlap	0.09	0.33	0.1	0.25

[1] *NB 529 Route uses NB Left Turn, SB 529 Route uses EB Right Turn so G/C Ratio is shown for those movements*

The Kane County Synchro/SimTraffic networks also aid in estimating and quantifying the overall performance and Level of Service based on the existing roadway configuration, existing traffic characteristics and designed signal timings. Level of Service (LOS) is a term used by the Highway Capacity Manual to assign a performance grade (A to F) to various traffic conditions based on calculated elements. For signalized intersections, LOS is defined by the average amount of delay experienced by vehicles at the intersection. **Table 3.3.C** summarizes the Level of Service of each approach and the overall intersection during AM and PM peak hours as determined by the Synchro/SimTraffic networks provided by Kane County.

Table 3.3.C Existing Signalized Intersections on Randall Road – Level of Service

	AM					PM				
		Approach					Approach			
Cross Street	**Overall**	NB	SB	EB	WB	**Overall**	NB	SB	EB	WB
Main Street	C	C	A	D	D	D	C	B	D	**F**
Wilson Street	A	A	A	**E**	D	B	B	A	D	D
McKee Street	B	A	A	D	D	C	B	C	D	D
Mill St	A	A	A	D	C	C	C	B	C	D
Fabyan Parkway	C	C	D	D	D	C	C	C	**E**	D
Gleneagle Drive	B	B	A	C	D	C	B	C	D	D
Christina Lane	A	A	A	D	C	B	B	A	D	D
Fargo Boulevard	B	A	A	D	D	C	B	C	**E**	**E**
Keslinger/Kaneville Rd	C	B	C	**E**	D	D	C	D	**E**	**F**
Williamsburg Avenue	B	B	B	D	**E**	C	B	C	D	**E**
Bricher Road	C	B	B	**E**	**E**	C	C	C	**E**	**E**
IL 38	D	C	C	**E**	D	D	D	D	**E**	**E**

As seen in the table, some overall intersection levels of service are approaching “noticeable” levels of delay (D). Several approaches already have either “high” or “unacceptable” levels of delay (E or F)

These include:

- IL 38 and Randall Road (AM and PM)
- Main Street and Randall Road (PM)
- Keslinger/Kaneville Road and Randall Road (PM)

A review of these Synchro/SimTraffic networks shows that the amount of existing traffic congestion through the study area is high, with several intersections approaching maximum capacity.

4.0 Assessment of Existing Deficiencies

Existing roadway features and Pace bus rider facilities were observed and evaluated with consideration to the Pace Development Guidelines, the U.S. Department of Justice's ADA Standards for Accessible Design, and the Illinois Department of Transportation's Bureau of Design & Environment Manual.

Significant deficiencies currently exist in the operation and passenger facilities of Pace Route 529, detracting from the safety and overall transit experience for both the bus operators as well as patrons of the system. Service was initiated with only existing conditions in-place in 2005. The deficiencies identified in this study will be described from two perspectives: bus operations and rider accommodations.

4.1. Bus Operations

At most of the stops on Pace Route 529, the current roadway and roadside configuration does not properly accommodate bus movements. To pick up and drop off passengers, bus drivers are generally forced to pull off onto roadway shoulders that are ill-suited for bus operations due to width, structural composition, or inadequate room to leave or return to the traffic stream. Tables 3.2.A and 3.2.B evaluate bus accommodations for each stop along the Pace Route 529 within the study area. Critical deficiencies are highlighted in these tables.

Width

The shoulder width at most bus stops along Randall Road cannot accommodate the width of a Pace bus. The Pace Development Guidelines identify the width of their typical bus to be 8.5 feet (Figure III-1)[11] and a preferred pavement width of 12' for bus stops (Figure IV-1)[12]. Shoulder widths on Randall Road varied, with the majority of stops allowing only 8' to 9' of width. These narrow shoulders do not allow for buses to safely pull over at stops and get completely out of the traffic stream. Buses must leave part of their vehicle protruding into the outside travel lane, leaving them vulnerable to rear-end collisions given the speed and volume of traffic on Randall Road. In many cases, the rear of the bus will protrude enough to block the travel lane, creating traffic delays. Vehicles stopped in the travel lane obstructed by a bus are also vulnerable to sideswiping and rear-end collisions if drivers become impatient and try to pass the bus in the adjacent travel lane.

Structural Composition

The shoulder pavement at most stops on Pace Route 529 is not sufficient to accommodate bus traffic. The weight of a typical Pace bus can range from about 13 to 19 tons and represents a significantly greater strain on the roadway pavement than a typical vehicle. While the roadway surface is designed to handle heavy vehicles, the shoulder typically is not. Roadway shoulders are generally designed to accommodate occasional stopped and emergency vehicles while providing lateral support to the adjacent roadway pavement layers and enable a misaligned vehicle to return to the traffic lanes. The shoulder / pavement cross-section elevations may pose a constraint as well..

Existing shoulder pavements on Randall Road are estimated by Kane County to be no more than 4" of hot-mix asphalt placed either on gravel base or directly on compacted earth. Pace drivers must pull onto these

[11] Figure III-1, Pace Development Guidelines, November 1999
[12] Figure IV-1, Pace Development Guidelines, November 1999

shoulders to serve their patrons, and in many cases may have to pull completely off the shoulder onto bare earth to get out of the stream of traffic, as described in the previous section.

Due to the weight of their vehicles, the Pace Development Guidelines recommend a more substantial pavement design able to accommodate vehicle loads of 20,000 lbs per axle. Furthermore, the Guidelines strongly recommend the use of portland cement concrete pavements for bus stop areas due to the heavy loading and shear forces generated by bus starting and stopping maneuvers. The pavement design of an 8" thick layer of portland cement concrete pavement with woven mesh reinforcement above 4" compacted granular base recommended for bus stops by Pace is shown in Figure 4.1.A.

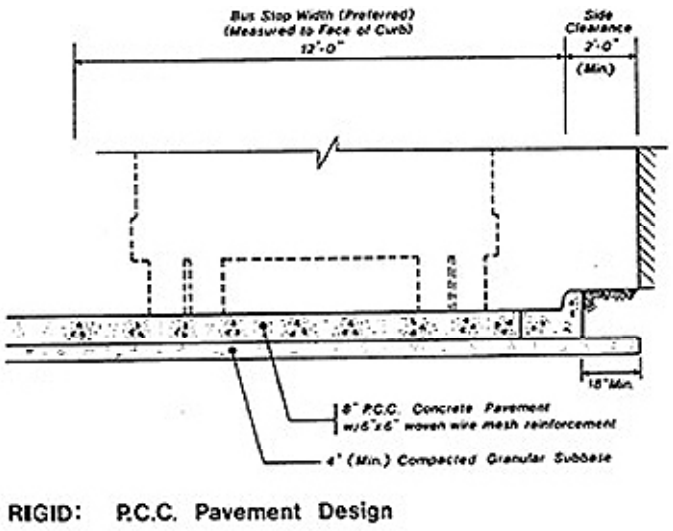


Figure 4.1.A P.C.C. Pavement Design from Pace Development Guidelines (Fig. IV-1) [13]

Continual use of the existing shoulders by Pace buses will accelerate the deterioration of the shoulder pavement, shortening its useful life. Buses can form deep ruts in the asphalt from their tires or heave the pavement into lateral ridges from bus braking/starting movements.

Acceleration/Deceleration

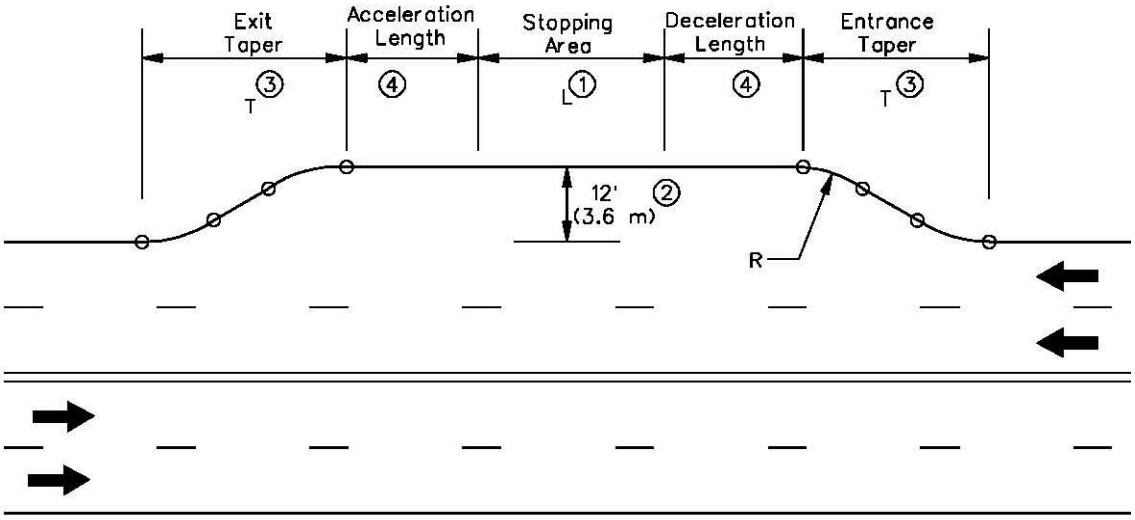
Several of the stops on the Pace Route 529 do not adequately provide for buses to safely decelerate to leave the traffic stream and accelerate back into it. Buses are exposed to rear-end collisions while decelerating for stops and sideswipe collisions when attempting to re-enter traffic.

Pace Development Guidelines and the IDOT Bureau of Design and Environment Manual both provide design recommendations for bus turnouts with deceleration and acceleration tapers for transitioning to and from the traffic stream. For Randall Road, has a posted speed of 45 mph, Pace recommends 175' tapers leading both to and from the turnout. However, the actual design of a turnout will depend on local site conditions, the volume of service and passenger transfer needs, and space constraints may limit the size of the turnouts. IDOT recommends tapers (Figure 58-3C) of 210 ft. Figure 4.1.B, taken from the IDOT Bureau of Design and

[13] Figure IV-1, Pace Development Guidelines, November 1999

Environment Manual, illustrates a typical design for a bus turnout. Where turn lanes are provided, turnout designs and tapers may differ or may be contained within the turn lane if turning movements are not significantly impeded by the bus.

Figure 4.1.B Bus Turnout Design from IDOT BDE Manual (Fig. 58-3C)



Bus turnout design tapers illustrate the importance of allowing buses room to slow down when approaching stops and to speed up to prevailing travel speed when leaving them. While providing acceleration/deceleration tapers is desirable for all shoulder bus stops on Pace Route 529, the need is lessened when the stop is located on the far-side of a signalized intersection. Far-side stops allow buses to decelerate through the intersection where other vehicles are generally more prepared to reduce speed. They also allow the bus an opportunity during red light signal phases to re-enter the travel lane and get up to traffic speed. When the cross street has the green light, sufficient gaps will be available within the traffic stream for the bus to merge back into the travel lane.

Table 4.1.A Existing Deficiencies in Bus Accommodations at Southbound Stops

Southbound Stops				Bus Accommodation		
No.	Dir	Street of Stop	Location	Acceleration / Deceleration	Pavement Width	Pavement Composition
1	SB	--	CURBSIDE at Kane County Judicial Center	N/A	N/A	N/A
2	SB	IL 38	NEARSIDE in EB Right Turn Lane from IL 38 to SB Randall Rd	**NONE. Bus blocks right turning movements when stopping.**	N/A. Bus stops in right turn lane.	N/A
3	SB	Randall Road	MIDBLOCK between Bricher Rd & Williamsburg Ave	**NONE. Stop is at mid-block, so bus must exit and enter full speed traffic stream (45+mph)**	**INSUFFICIENT. Shoulder is only 9' wide, so bus will obstruct traffic when pulling over.**	**INADEQUATE. Existing bituminous shoulder pavement is not designed for bus loading**
4	SB	Randall Road	MIDBLOCK between Williamsburg Ave & Keslinger Rd	**NONE. Stop is at mid-block, so bus must exit and enter full speed traffic stream (45+mph)**	**INSUFFICIENT. Shoulder is only 9' wide, so bus will obstruct traffic when pulling over.**	**INADEQUATE. Existing bituminous shoulder pavement is not designed for bus loading**
5	SB	Randall Road	MIDBLOCK between Christina Ln & Gleneagle Dr	**NONE. Stop is at mid-block, so bus must exit and enter full speed traffic stream (45+mph)**	**INSUFFICIENT. Shoulder is only 8.5' wide, so bus will obstruct traffic when pulling over.**	**INADEQUATE. Existing bituminous shoulder pavement is not designed for bus loading**
6	SB	Randall Road	FARSIDE at Mill St	NONE, but bus can decelerate to the stop through the intersection and wait for a red light before pulling out again.	**INSUFFICIENT. Shoulder is only 8' wide, so bus will obstruct traffic when pulling over.**	**INADEQUATE. Existing bituminous shoulder pavement is not designed for bus loading**
7	SB	Randall Road	FARSIDE at McKee St	NONE, but bus can decelerate to the stop through the intersection and wait for a red light before pulling out again.	**INSUFFICIENT. Shoulder is only 8' wide, so bus will obstruct traffic when pulling over.**	**INADEQUATE. Existing bituminous shoulder pavement is not designed for bus loading**
8	SB	Randall Road	FARSIDE at Wilson St	NONE, but bus can decelerate to the stop through the intersection and wait for a red light before pulling out again.	**INSUFFICIENT. Shoulder is only 8' wide, so bus will obstruct traffic when pulling over.**	**INADEQUATE. Existing bituminous shoulder pavement is not designed for bus loading**
9	SB	Randall Road	FARSIDE at Orchard/ Mooseheart Rd	NONE, but bus can decelerate to the stop through the intersection and wait for a red light before pulling out again.	**INSUFFICIENT. Shoulder is only 8' wide, so bus will obstruct traffic when pulling over.**	**INADEQUATE. Existing bituminous shoulder pavement is not designed for bus loading**
10	SB	Randall Road	FARSIDE at Ritter St/ Dogwood Dr	NONE, but bus can decelerate to the stop through the intersection and wait for a red light before pulling out again.	**INSUFFICIENT. Shoulder is only 7' wide, so bus will obstruct traffic when pulling over.**	**INADEQUATE. Existing bituminous shoulder pavement is not designed for bus loading**
11	SB	Randall Road	NEARSIDE at Oak St	NONE, but bus can decelerate to the stop through the intersection and wait for a red light before pulling out again.	**INSUFFICIENT. Shoulder is only 8' wide, so bus will obstruct traffic when pulling over.**	**INADEQUATE. Existing bituminous shoulder pavement is not designed for bus loading**
12	SB	Randall Road	MIDBLOCK north of Ice Cream Dr	**NONE. Stop is at mid-block, so bus must exit and enter full speed traffic stream (45+mph)**	**INSUFFICIENT. Shoulder is only 9' wide, so bus will obstruct traffic when pulling over.**	**INADEQUATE. Existing bituminous shoulder pavement is not designed for bus loading**
13	SB	Sullivan Road	FARSIDE on EB Sullivan Rd east of Randall Rd	NONE, but bus can decelerate to the stop through the intersection and wait for a red light before pulling out again.	**INSUFFICIENT. Shoulder is only 9.5' wide, so bus will obstruct traffic when pulling over.**	**INADEQUATE. Existing aggregate shoulder is not designed for bus loading**

Table 4.1.B Existing Deficiencies in Bus Accommodations at Northbound Stops

Northbound Stops				Bus Accommodation		
No.	Dir	Street of Stop	Location	Acceleration / Deceleration	Pavement Width	Pavement Composition
1	NB	Sullivan Road	NEARSIDE on WB Sullivan Rd east of Randall Rd	**NONE. Bus has awkward transitions from gravel shoulder to bituminous pavement entering and departing stop.**	ADEQUATE width provided for bus to exit the travel lane.	**INADEQUATE. Existing aggregate shoulder is not designed for bus loading**
2	NB	Randall Road	FARSIDE at Ice Cream Dr	NONE, but bus can decelerate to the stop through the intersection and wait for a red light before pulling out again.	**INSUFFICIENT. Shoulder is only 9' wide, so bus will obstruct traffic when pulling over.**	**INADEQUATE. Existing bituminous shoulder pavement is not designed for bus loading**
3	NB	Randall Road	FARSIDE at Oak St	NONE, but bus can decelerate to the stop through the intersection and wait for a red light before pulling out again.	**INSUFFICIENT. Shoulder is only 9' wide, so bus will obstruct traffic when pulling over.**	**INADEQUATE. Existing bituminous shoulder pavement (with rumble strips) is not designed for bus loading.**
4	NB	Randall Road	FARSIDE at Ritter St/ Dogwood Dr	NONE, but bus can decelerate to the stop through the intersection and wait for a red light before pulling out again.	**INSUFFICIENT. Shoulder is only 9' wide, so bus will obstruct traffic when pulling over.**	**INADEQUATE. Existing bituminous shoulder pavement (with rumble strips) is not designed for bus loading.**
5	NB	Randall Road	FARSIDE at Main St	NONE, but bus can decelerate to the stop through the intersection and wait for a red light before pulling out again.	**INSUFFICIENT. Shoulder is only 10' wide, so bus will obstruct traffic when pulling over.**	**INADEQUATE. Existing bituminous shoulder pavement is not designed for bus loading**
6	NB	Randall Road	FARSIDE at McKee St	NONE, but bus can decelerate to the stop through the intersection and wait for a red light before pulling out again.	**INSUFFICIENT. Shoulder is only 8' wide, so bus will obstruct traffic when pulling over.**	**INADEQUATE. Existing bituminous shoulder pavement is not designed for bus loading**
7	NB	Randall Road	FARSIDE at Mill St	NONE, but bus can decelerate to the stop through the intersection and wait for a red light before pulling out again.	**INSUFFICIENT. Shoulder is only 8' wide, so bus will obstruct traffic when pulling over.**	**INADEQUATE. Existing bituminous shoulder pavement is not designed for bus loading**
8	NB	Randall Road	MIDBLOCK between Fabyan Pkwy and Gleneagle Dr	**NONE. Stop is at mid-block, so bus must exit and enter full speed traffic stream (45+mph)**	ADEQUATE width provided for bus to exit the travel lane. Existing shoulder has been widened to 14'	**INADEQUATE. Existing bituminous shoulder pavement is not designed for bus loading**
9	NB	Randall Road	FARSIDE at Christina Ln	NONE, but bus can decelerate to the stop through the intersection and wait for a red light before pulling out again.	**INSUFFICIENT. Shoulder is only 8' wide, so bus will obstruct traffic when pulling over.**	**INADEQUATE. Existing bituminous shoulder pavement is not designed for bus loading**
10	NB	Keslinger Road	FARSIDE on WB Keslinger Rd west of Randall	NONE, but bus can decelerate to the stop through the intersection and wait for a red light before pulling out again.	ADEQUATE width provided for bus to exit the travel lane. Existing shoulder is 20'	**INADEQUATE. Existing bituminous shoulder pavement is not designed for bus loading**
11	NB	Delnor Dr.	CURBSIDE at Delnor Hospital at North entrance	N/A	N/A	N/A
12	NB	IL 38 Lincoln Highway	NEARSIDE 1000ft west of Randall	**NONE. Bus must stop in the travel lane and block through traffic.**	**Bus stops in travel lane.**	N/A
13	NB	--	CURBSIDE at Kane County Judicial Center	N/A	N/A	N/A

4.2 Rider Accommodations

The majority of the stops on Pace Route 529 do not properly accommodate riders in accessing the stop location, waiting for buses, or boarding buses. The most significant deficiency noted when assessing facilities of Pace Route 529 is the lack of accessible routes of travel to and from bus stops. Through the Americans with Disabilities Act (ADA), the federal government requires public facilities to provide accommodations allowing for equal use by disabled individuals, including those that are visually and/or mobility impaired. All new public construction is required by law to provide at least one accessible route meeting the ADA Standards for Accessible Design (28 CFR Part 36, U.S. Department of Justice). Several of the existing stops do not provide good accommodations for able-bodied individuals let alone the disabled.

Accessibility of Stops

The overall accessibility of a bus stop can be evaluated under multiple criteria, including the travel route a rider must take to reach the stop, the ease in which riders can board the bus at the stop, and the linkages to potential destinations served by the stop.

Accessible Routes

Currently, very few of the stops on Pace Route 529 provide an "accessible route" that meets ADA requirements. Some of the basic elements of an ADA accessible route are:

- 36" minimum width route, clear of obstructions
- A stable, firm, slip resistant surface
- Maximum cross slope of 2%
- Maximum ramp profiles of 8.33%
- Separation from roadways with curbs or parkways.

A typical stop treatment as provided along Randall Road is shown in Exhibit **4.2.A.** As seen in the photo, the only way to reach the bus stop waiting area is to walk along the roadside shoulder for some distance away from the intersection.

Exhibit 4.2.A Typical Existing Bus Stop

This treatment does not represent a suitable ADA accessible route as it is not separated from the roadway nor does it provide a dedicated walkway. In many cases, roadside shoulders are typically designed to slope away from the roadway at a 4% cross slope to better drain surface runoff. This is an unsuitable cross slope for the disabled to traverse. For the stops at Sullivan Road, the shoulder is loose gravel and thus entirely inaccessible to the disabled.

Boarding Accessibility

For a bus route to adequately serve the disabled, the stop needs to be level with the entrance to the bus and accommodations must be made inside the bus to provide a handicapped seating area with a level floor. To achieve this, either each stop platform needs to be at the same elevation as the floor of the bus or each bus needs a level-change boarding mechanism such as a ramp or the ability to "kneel" by using hydraulics.

Pace provides for disabled riders by integrating low-floor buses with priority seating areas and kneeling, ramp, or lift mechanisms to assist boarding into their fleet. In case of mechanical failures or other unforeseen circumstances that prevent the pick-up of a disabled passenger, Pace dispatches a back-up vehicle if the waiting time for the next bus exceeds 30 minutes.

Although Pace buses have the ability to pick up disabled passengers through mechanical devices, the roadside infrastructure could provide better accommodations to assist. With most existing stops along the roadside shoulder, there is inadequate shoulder width for buses to pull completely off the roadway (detailed in section 4.1). This lack of space further impacts passengers who currently board the bus from a grassy

roadside embankment or parkway if the bus pulls out of the travel lane. Roadside embankments are typically sloped at steeper rates than shoulders and can even reach 33% (3:1) cross slopes.

Linkage to Destination

To provide proper access to and from bus stops, sidewalks must be available to bridge the distance between the stop and destination. The majority of stops in the study area are located near a signalized intersection in order to provide pedestrian linkages to the bus stop from either side of Randall Road. With the heavy traffic volumes, high speeds, and significant width of Randall Road, it is difficult to access mid-block crossings from nearby land uses.

To reach their destination, existing conditions require riders to traverse grassy parkways with unsure footing or walk in the street/on the shoulder, exposed to traffic. The grassy parkways increase risk to riders under wet conditions or where there are steep embankments, and can be virtually impassable when snow is present. If the intended destination is on the opposite side of the street, curb ramps and marked crosswalks must be provided at the intersection to expedite pedestrian movements.

The availability of sidewalks, curb ramps, and crosswalks at each signalized intersection within the study limits was reviewed. In many cases, sidewalks do not exist at each corner. In several locations, curb ramps either are not provided or are only provided in select corners of the intersection. Without curb ramps, the disabled have difficulty crossing the street. Painted crosswalks, which are important to define a pedestrian path and alert motorists to the crossing, were only found at a few intersections. Table 4.2.A lists existing deficiencies of pedestrian accommodations at intersections.

Table 4.2.A Existing Deficiencies of Pedestrian Accommodations at Intersections

	Pedestrian Accommodations		
Cross Street	Sidewalk	Curb Ramps	Crosswalks
Sullivan Road	SW corner only	None	None
Ice Cream Drive	SW corner only	None	None
Oak Street	NW, NE, SE	NW, NE, SE	**North leg**
Comiskey Avenue	SW corner only	None	None
Ritter St/Dogwood Dr	NW, NE, SW	NW, NE, SW	**None**
Orchard Road	None	None	None
Main Street	NE, SW	None	None
Wilson Street	SE, SW	SE, SW	**South leg**
McKee Street	All	**NE, SE**	**None**
Mill St	SE, SW	SE, SW	**None**
Fabyan Parkway	NW, NE, SW	**None**	**None**
Gleneagle Drive	All	All	**None**
Christina Lane	All	All	**East/West legs**
Fargo Boulevard	All	All	**North/East/West**
Keslinger/Kaneville Road	NW, NE	NW, NE	**None**
Williamsburg Avenue	All	All	**East/West/South**
Bricher Road	NW, SW, SE	**SW, SE**	**South leg**
IL 38 Lincoln Highway	NW	All	All

Bus Waiting Areas

As noted in the Pace Development Guidelines Section 5C, *"designing waiting facilities with amenities that increase passenger's comfort levels and feelings of security can encourage suburban travelers to use public transit."*

Passenger waiting areas can include a physical shelter, bench, and other amenities, or be as simple as a sidewalk that provides the rider with a firm surface to stand on, away from roadway traffic, to await the bus. No passenger waiting areas are provided at any of the 529 Route stops within the study limits other than at the Kane County Judicial Center and the Delnor Hospital curbside stops.

Tables 4.2.B and 4.2.C evaluate rider accommodations for each stop along Pace Route 529 within the study area. Critical deficiencies are highlighted in these tables.

Table 4.2.B Existing Deficiencies in Rider Accommodations at Southbound Stops

Southbound Stops			Pedestrian Accommodation				
			Accessibility		Linkage to	Waiting Area	
No.	Street of Stop	Location	to Stop	Boarding	Destination	Comfort	Safety
1	--	CURBSIDE at Kane County Judicial Center	N/A	ACCEPTABLE. Boarding from sidewalk at standard curb height is acceptable if buses have ramps and/or kneeling ability.	EXCELLENT.	ACCEPTABLE. Customers can wait on sidewalk but are vulnerable to elements.	N/A
2	IL 38	NEARSIDE in EB Right Turn Lane from IL 38 to SB Randall Rd	GOOD. Crosswalks and curb ramps are provided for all possible ped movements at the intersection. Curb ramps need to be ugraded with detectable warnings.	ACCEPTABLE. Boarding from sidewalk at standard curb height is acceptable if buses have ramps and/or kneeling ability.	NONE. Although crosswalks and curb ramps are provided at the intersections, sidewalks end abruptly and do not lead to nearby destinations like Meijer.	ACCEPTABLE. Customers can wait on sidewalk but are vulnerable to elements.	ACCEPTABLE. Curbed roadway and sidewalk provide enough of a waiting area for customers.
3	Randall Road	MIDBLOCK between Bricher Rd & Williamsburg Ave	COMPLETELY INACCESSIBLE. Tall berm and roadside ditch are major barriers to reaching the stop.	POOR. Boarding is off the roadside shoulder which is pitched away from the roadway.	NONE. Peds must traverse ditch and scale berm to reach destination of shopping center.	NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.	VULNERABLE to errant traffic or falling backwards into the ditch.
4	Randall Road	MIDBLOCK between Williamsburg Ave & Keslinger Rd	COMPLETELY INACCESSIBLE. Tall berm and roadside ditch are major barriers to reaching the stop.	POOR. Boarding is off the roadside shoulder which is pitched away from the roadway.	NONE. Peds must traverse ditch and scale berm to reach destination of shopping center.	NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.	VULNERABLE to errant traffic or falling backwards into the ditch.
5	Randall Road	MIDBLOCK between Christina Ln & Gleneagle Dr	INACCESSIBLE. Customers must cross roadside ditch to reach the stop.	POOR. Boarding is off the roadside shoulder which is pitched away from the roadway.	NONE. Peds must traverse ditch to reach destination of shopping center.	NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.	VULNERABLE to errant traffic or falling backwards into the ditch.
6	Randall Road	FARSIDE at Mill St	INACCESSIBLE. Customers must cross roadside ditch or walk along Randall to reach the stop.	POOR. Boarding is off the roadside shoulder which is pitched away from the roadway. Handicapped must enter street and wait on the narrow shoulder to board at this location.	POOR. Peds must traverse ditch or walk along the side of the road for a short distance. Nearby intersection only has partial ped accommodation.	NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.	VULNERABLE to errant traffic or falling backwards into the ditch.
7	Randall Road	FARSIDE at McKee St	INACCESSIBLE. Customers must walk along Randall to reach the stop.	POOR. Boarding is off the roadside shoulder which is pitched away from the roadway. Handicapped must enter street and wait on the narrow shoulder to board at this location.	POOR. Peds must walk along the side of the road for a short distance. Nearby intersection only has partial ped accommodation.	NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.	VULNERABLE to errant traffic or falling backwards into the ditch.
8	Randall Road	FARSIDE at Wilson St	INACCESSIBLE. Customers must cross roadside ditch or walk along Randall to reach the stop.	POOR. Boarding is off the roadside shoulder which is pitched away from the roadway. Handicapped must enter street and wait on the narrow shoulder to board at this location.	POOR. Peds must traverse ditch or walk along the side of the road for a short distance. Nearby intersection only has partial ped accommodation.	NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.	VULNERABLE to errant traffic or falling backwards into the ditch.
9	Randall Road	FARSIDE at Orchard/ Mooseheart Rd	INACCESSIBLE. Customers must walk along Randall to reach the stop.	POOR. Boarding is off the roadside shoulder which is pitched away from the roadway. Handicapped must enter street and wait on the narrow shoulder to board at this location.	NONE. The origin/ destination for this stop is not clear. No pedestrian accommodations at nearby intersection.	NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.	VULNERABLE to errant traffic or falling backwards into the ditch.
10	Randall Road	FARSIDE at Ritter St/ Dogwood Dr	INACCESSIBLE. Customers must walk along Randall to reach the stop.	POOR. Boarding is off the roadside shoulder which is pitched away from the roadway. Handicapped must enter street and wait on the narrow shoulder to board at this location.	POOR. Peds must traverse ditch or walk along the side of the road for a short distance. Nearby intersection only has partial ped accommodation.	NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.	VULNERABLE to errant traffic or falling backwards into the ditch.
11	Randall Road	NEARSIDE at Oak St	INACCESSIBLE. Customers must walk along Randall to reach the stop.	POOR. Boarding is off the roadside shoulder which is pitched away from the roadway. Handicapped must enter street and wait on the narrow shoulder to board at this location.	POOR. Peds must traverse ditch or walk along the side of the road for a short distance. Nearby intersection only has partial ped accommodation.	NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.	VULNERABLE to errant traffic or falling backwards into the ditch.
12	Randall Road	MIDBLOCK north of Ice Cream Dr	COMPLETELY INACCESSIBLE. Customers must walk an excessively long distance along Randall to reach the stop.	POOR. Boarding is off the roadside shoulder which is pitched away from the roadway. Handicapped must enter street, travel on the shoulder a great distance, and wait on the narrow shoulder to board at this location.	NONE. Stop is not near the intersection or any pedestrian accommodations. Potential destinations including Target and Oberweis are relatively distant.	NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.	VULNERABLE to errant traffic.
13	Sullivan Road	FARSIDE on EB Sullivan Rd east of Randall Rd	COMPLETELY INACCESSIBLE. Customers must walk along Sullivan to reach the stop. With gravel shoulders, wheelchairs would need to use the travel lane.	POOR. Boarding is off the roadside shoulder which is pitched away from the roadway. Handicapped must enter street, traverse a gravel shoulder, and wait on the narrow shoulder to board at this location.	POOR. Peds must walk along the side of the road for a short distance. No pedestrian accommodations at nearby intersection.	NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.	VULNERABLE to errant traffic.

Table 4.2.C Existing Deficiencies in Pedestrian Accommodations at Northbound Stops

Northbound Stops			Pedestrian Accommodation				
			Accessibility		Linkage to	Waiting Area	
No.	Street of Stop	Location	to Stop	Boarding	Destination	Comfort	Safety
1	Sullivan Road	NEARSIDE on WB Sullivan Rd east of Randall Rd	**COMPLETELY INACCESSIBLE. Customers must walk along Sullivan to reach the stop. With gravel shoulders, wheelchairs would need to use the travel lane.**	**POOR. Boarding is off the roadside shoulder which is pitched away from the roadway. Handicapped must enter street, traverse a gravel shoulder, and wait on the narrow shoulder to board at this location.**	**POOR. Peds must walk along the side of the road for a short distance. No pedestrian accommodations at nearby intersection.**	**NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.**	**VULNERABLE to errant traffic.**
2	Randall Road	FARSIDE at Ice Cream Dr	**INACCESSIBLE. Customers must walk along Randall to reach the stop.**	**POOR. Boarding is off the roadside shoulder which is pitched away from the roadway. Handicapped must enter street and wait on the narrow shoulder to board at this location.**	**POOR. Peds must walk along the side of the road for a short distance. No pedestrian accommodations at nearby intersection.**	**NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.**	**VULNERABLE to errant traffic.**
3	Randall Road	FARSIDE at Oak St	**INACCESSIBLE. Customers must walk along Randall to reach the stop.**	**POOR. Boarding is off the roadside shoulder which is pitched away from the roadway. Handicapped must enter street and wait on the narrow shoulder to board at this location.**	**POOR. Peds must traverse ditch or walk along the side of the road for a short distance. Nearby intersection only has partial ped accommodation.**	**NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.**	**VULNERABLE to errant traffic or falling backwards into the ditch.**
4	Randall Road	FARSIDE at Ritter St/ Dogwood Dr	**INACCESSIBLE. Customers must walk along Randall to reach the stop.**	**POOR. Boarding is off the roadside shoulder which is pitched away from the roadway. Handicapped must enter street and wait on the narrow shoulder to board at this location.**	**POOR. Peds must traverse ditch or walk along the side of the road for a short distance. Nearby intersection only has partial ped accommodation.**	**NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.**	**VULNERABLE to errant traffic.**
5	Randall Road	FARSIDE at Main St	**INACCESSIBLE. Customers must walk along Randall to reach the stop.**	**POOR. Boarding is off the roadside shoulder which is pitched away from the roadway. Handicapped must enter street and wait on the narrow shoulder to board at this location.**	**POOR. Peds must walk along the side of the road for a short distance. No pedestrian accommodations at nearby intersection.**	**NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.**	**VULNERABLE to errant traffic.**
6	Randall Road	FARSIDE at McKee St	**INACCESSIBLE. Customers must walk along Randall to reach the stop.**	**POOR. Boarding is off the roadside shoulder which is pitched away from the roadway. Handicapped must enter street and wait on the narrow shoulder to board at this location.**	**POOR. Peds must walk through grass or along the side of the road for a short distance. Nearby intersection only has partial ped accommodation.**	**NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.**	**VULNERABLE to errant traffic.**
7	Randall Road	FARSIDE at Mill St	**INACCESSIBLE. Customers must walk along Randall to reach the stop.**	**POOR. Boarding is off the roadside shoulder which is pitched away from the roadway. Handicapped must enter street and wait on the narrow shoulder to board at this location.**	**POOR. Peds must walk through grass or along the side of the road for a short distance. Nearby intersection only has partial ped accommodation.**	**NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.**	**VULNERABLE to errant traffic.**
8	Randall Road	MIDBLOCK between Fabyan Pkwy and Gleneagle Dr	**INACCESSIBLE. Customers must cross roadside ditch to reach the stop.**	**POOR. Boarding is off the roadside shoulder which is pitched away from the roadway.**	**POOR. Peds must walk through grass to reach sidewalk.**	**NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.**	**VULNERABLE to errant traffic.**
9	Randall Road	FARSIDE at Christina Ln	**INACCESSIBLE. Customers must walk along Randall to reach the stop.**	**POOR. Boarding is off the roadside shoulder which is pitched away from the roadway. Handicapped must enter street and wait on the narrow shoulder to board at this location.**	**POOR. Peds must walk through grass or along the side of the road for a short distance.**	**NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.**	**VULNERABLE to errant traffic.**
10	Keslinger Road	FARSIDE on WB Keslinger Rd west of Randall	**INACCESSIBLE. Customers must walk along Keslinger to reach the stop.**	**POOR. Boarding is off the roadside shoulder which is pitched away from the roadway. Handicapped must enter street and wait on the narrow shoulder to board at this location.**	**POOR. Peds must walk through grass or along the side of the road for a short distance. Nearby intersection only has partial ped accommodation.**	**NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.**	**VULNERABLE to errant traffic or falling backwards into the ditch.**
11	Delnor Dr.	CURBSIDE at Delnor Hospital at North entrance	No issues.	ACCEPTABLE. Boarding from sidewalk at standard curb height is acceptable if buses have ramps and/or kneeling ability.	EXCELLENT.	GOOD. Stop is under canopy at hospital entrance and protected from elements.	No issues.
12	IL 38 LincoIn Highway	NEARSIDE 1000ft west of Randall	**INACCESSIBLE. Customers must walk through the grass to reach the stop.**	**POOR. Boarding is from the grass parkway on this curbed roadway.**	**NONE. No access to the stop and no ped accommodation at the nearby intersection.**	**NON-EXISTENT waiting area. Customers do not have a place to stand and are vulnerable to the elements.**	**VULNERABLE to errant traffic.**
13	--	CURBSIDE at Kane County Judicial Center	No issues.	ACCEPTABLE. Boarding from sidewalk at standard curb height is acceptable if buses have ramps and/or kneeling ability.	EXCELLENT.	ACCEPTABLE. Customers can wait on sidewalk but are vulnerable to elements.	No issues.

5.0 Study Website and On-Line Survey

Recognizing the importance of stakeholder and public involvement, the Randall Road Route 529 Study included several steps to inform, engage and solicit input. A very important element included the Advisory Council, comprised of the five corridor communities, Kane County, Pace, RTA, and IDOT. In addition, a project website was developed (http://www.route529study.com/), which served as an efficient method to share study products as well as to solicit public input. The website was used as the platform for an online survey to obtain input from riders and corridor travelers. The survey purpose was to identify issues related to pedestrian access, service, schedule, bus stop location, connection to other routes, costs, and other areas of interest to the study. 78 responses were received. A report providing a more complete description of the purpose, process, promotional efforts, results, and conclusions is included as Appendix A.

Conclusions of the survey can be summarized in the following points:

- Route 529 stops are not convenient to rider destinations.
- Installing shelters and sidewalks were viewed as important investments.
- Pedestrian roadway crossings are inadequate.
- Respondent opinions on stop locations included:
    - Add stops - 47% high priority
    - Change stop locations - 32% high priority
    - Remove stops - 6% high priority
- Route 529 service does not run late enough.
- Increasing the frequency of service was cited as an improvement of high priority.
- Three-quarters of respondents who ride Route 529 indicated a willingness to walk one quarter mile or further to or from a bus stop.
- Route 529 does not make convenient connections with other routes.

6.0 Land Use Development Strategies and Design Guidelines

Strengths, Weaknesses, Opportunities, and Threats (SWOT)

To launch the Randall Road corridor study, the AECOM team implemented a Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis with the Advisory Council meeting on October 7, 2009. This exercise took place early in the project, to ensure that stakeholder input would be recorded and would influence the outcome of the project.

The SWOT Analysis is a planning method that helps stakeholders focus on assets rather than deficiencies. It was particularly useful for this effort to help the consultant team understand stakeholder concerns and preferences, as it gave the Advisory Council an opportunity to provide input on the many elements that shape the Randall Road corridor, including land uses, transportation, and urban design of existing development, pedestrian accommodations, infrastructure, open space, and other issues important for the corridor. In addition, the intent of the SWOT was to help Advisory Council members to better understand the priorities and concerns of others within the client team and to find consensus on the most pressing issues.

The consultant team implemented the SWOT analysis as a guided exercise, encouraging Advisory Council members to describe the corridor's strengths, weaknesses, opportunities, and threats. All comments were recorded by a facilitator in a public manner, on large sheets of paper during the meeting, to ensure that all voices were heard and accurately recorded. After the meeting, the comments were compiled and it is included in Appendix B. The results were revisited over the course of the project to ensure that the recommendations addressed the Advisory Council members' input.

Design Precedents

The AECOM team explored design precedents appropriate for future development along the Randall Road corridor, in keeping with the desired outcomes established in the SWOT analysis and informal input from the Advisory Council and client team. Design precedents provide examples of existing projects with similar features to the Randall Road corridor, where the development's uses and site design contribute positively to the surrounding community. Most importantly, they provide insight on existing developments that are being constructed and implemented successfully, in contexts with similar physical features and conditions as the Randall Road corridor. The design precedents are intended to be a "reality check" to guide the development of the recommended design guidelines.

The most pertinent design precedents were those with comparable right-of-way widths, roadway configurations, and transit accessibility. In the private realm, appropriate development sites include features such as a mix of uses, strong pedestrian orientation, buildings constructed with minimal setbacks, and parking lots located behind or next to buildings

Development of Design Principles

Based on general site conditions along the corridor, and guided by the Advisory Council input and design precedents, the AECOM team developed design principles for future development along the Randall Road corridor. Key elements of the design principles address land use strategies for future development, such as encouraging mixed-use development where appropriate, discouraging larger-lot single-family residential development adjacent to Randall Road, and encouraging light industrial uses in appropriate sites. Great importance is also given to the overall pedestrian experience, considering that a pleasant pedestrian

environment from the public realm to development sites is necessary to encourage bus ridership. The design principles address how strategic design of development features such as building orientation, location of parking areas, and walkways can create a comfortable pedestrian environment. A separate detail document "Land Use Development Strategies/Design Guidelines for Future Development along the Randall Road Corridor" describing each of the design principles is included in this section. Note that these advisory guidelines are intended for new development or for redevelopment being initiated for economic reasons.

Land Use Development Strategies/Design Guidelines for Future Development along the Randall Road Corridor

Currently, low density development along the Randall Road Corridor is not transit supportive. The lack of adequate pedestrian amenities and infrastructure creates challenges for those who are seeking to use the corridor. To encourage residents, consumers and employees who live, shop and work within the Randall Road Corridor to reduce their reliance on single occupancy vehicles, it is important to create a pedestrian friendly atmosphere that encourages pedestrian movement from the bus stop to destination point.

Older, under-utilized single-use retail centers can become candidates to transition into mixed-use, walkable neighborhoods. While not every (re)development will lead to a mixed-use neighborhood center, developments can still benefit from aspects of these recommendations to create more vibrant destinations. The following design guidelines will help inform (re)development decisions along the Randall Road Corridor to create a more pedestrian friendly and transit supportive environment through:

- **Encouraging mixed-use development**
- **Connecting residences to the corridor**
- **Relating buildings to the street**
- **Creating public and open spaces along the corridor**
- **Recreating the parking environment**
- **Designing for the pedestrian experience**

Encourage Mixed-Use Development

Purpose and Intent: Mixed use development is highly recommended for all re-development and future development within the Randall Road Corridor. Benefits of this strategy to support Route 529 and increase ridership are that it:

- Broadens housing options
- Reduces auto dependence by increasing walkability and bikeability
- Provides transit supportive land-use
- Creates a local sense of place with vibrant destination points
- Populates and activates neighborhoods during both day and evening hours

The County and municipalities should strive to attract businesses that create a mix of activities and land uses at existing retail locations to transition from single store retail development to mixed-use and establish new activity centers along the Corridor. Mixed-use development encourages environments in which walking, biking and transit are viable transportation options. Clustering (re)development at key growth nodes, in coordination with the transit station location will be important for the overall design strategy for the corridor.

Standards and Guidelines

☐ Encourage infill development along the corridor. Additional consideration and study should be given to developing Form Based Codes for growth nodes along corridor.

☐ Encourage adaptive reuse strategies and the use of *White Elephant* ordinances.

- Communities can use several techniques to address a large stand-alone or anchor retailer vacancy. A municipality may consider regulations to avoid situations which may encourage blight such as:
  - Requiring performance bonds where the developer pays for the demolition or maintenance of the vacated properties,
  - Creating plans for reuse in case of vacancy,
  - Requiring vacating businesses to assist in marketing the property,
  - Limiting the use of restrictive covenants.

Connect Residences to the Corridor

Purpose and Intent: Land uses along the Randall Road Corridor oftentimes do not complement one another and are designed in a fashion that segregates the uses. Current residential uses physically turn their back to the Corridor in terms of development orientation, and offer few public connection points to and from the commercial land uses. In order to support transit along the corridor housing density should be increased through infill or new development. A range of housing options can provide greater opportunities for employees to live and work in the corridor.

Standards and Guidelines

- ☐ Establish transportation connections, including streets, walkways and bikeways, to link existing residential uses to commercial uses and corridor.

- ☐ Local governments should work together to create a 2,000' overlay zone that encourages mixed-use, multi-family residential development of greater than 7 dwelling units/acre along the Randall Road Corridor. Additional housing will provide increased support to transit services. All new residential development should be built with adequate pedestrian access to surrounding land uses.

Relate Buildings to Randall Road

Purpose and Intent: Building facades are the public *face* of every building. As much as possible, building frontage for future development should be oriented toward and located as close as appropriate to Randall Road. In addition, developments should enhance access for the existing residences along the corridor.

Standards and Guidelines

- ☐ Buildings should be located adjacent to the street at the front of the setback line or immediately behind a public space.
- ☐ Retail use entrances should face the street at the ground-floor level and be accessible from the public right-of-way.
- ☐ Blank, windowless walls should be avoided. All visible frontages should be detailed with architectural elements.
- ☐ The street corners or corner sites should be developed with buildings, public spaces or open space areas.
- ☐ Owners of adjoining properties are strongly encouraged to develop shared facilities such as driveways, parking areas, pedestrian plazas and walkways.
- ☐ Loading and service entrances should not intrude upon the public view or interfere with pedestrian and vehicular flows within the project.

- ☐ Service areas, garbage receptacles, utility meters and mechanical or and electrical equipment should be screened from the public view and integrated into the overall building and landscape design.

- ☐ Rear or side access roads should be provided to service commercial development and serve as loading areas.

1 Example of a Rear Access Road serving as a loading area. Source: IL Route 47 Corridor Planning Study

Create Public and Open Spaces:

Purpose and Intent: Currently there is a lack of usable public and open spaces along the Randall Road Corridor that act as destination points. Public spaces distinguish a neighborhood center and provide unique destination points for users of the corridor. Local governments should develop a comprehensive open space network that uses plazas and other open space elements to connect users. Open space areas and the paths that link them should also facilitate the integration of adjacent land uses on the site.

Standards and Guidelines

- ☐ A minimum of 10-20% of (re)development should be dedicated towards public and open spaces.

- ☐ Plazas and courtyards should be developed with walkways and bikeways to maximize circulation opportunities to adjacent uses.

- ☐ Where practical, outdoor areas should be visible from public streets or trail networks and accessible from the surrounding land uses as well as the street.

- ☐ Seating areas should be provided and coordinated with landscaping, lighting and views to focal points.

Recreate the Parking Environment

Purpose and Intent: Retail and commercial developers often site large amounts of surface parking between their development and the road. Large areas of surface parking between a transit stop and the building creates a discouraging environment for the pedestrian, raises safety concerns, and provides no clear path to get from one point to another. Local governments should re-examine existing parking requirements for the Randall Road Corridor.

Standards and Guidelines

- ☐ Parking areas should not be located at corners.
- ☐ Parking areas should not create a separation between adjacent land uses and buildings.
- ☐ Parking areas should be located on the sides or rear of buildings with pedestrian connections between the parking areas to the destinations.
- ☐ Large parking lots should be broken up into smaller but connected parking areas clearly defined by buildings, landscaping, and pedestrian walkways.

- ☐ Consideration should be given to eliminating minimum and creating maximum parking requirements for corridor.

- ☐ Shared parking should be encouraged where various uses have peak parking demands at different times.

- ☐ All parking areas and pedestrian walkways should be ADA compliant.

- ☐ Consideration should be given to infill and redeveloping parking lots.

- ☐ Consideration should be given to underground parking, parking structures and roof parking.

Parking Lot Vegetation

Vegetated areas within parking lots will further enhance pedestrian comfort and safety. They can also reduce the urban heat island effect, improve the quality of stormwater runoff, and decrease the quantity of stormwater runoff.

- ☐ Surface parking areas should be buffered with perimeter landscaping.

- ☐ Landscape islands should be provided at least every tenth parking space and at the ends of parking rows. The islands should be the full depth and width of the adjacent parking spaces.

- ☐ Where feasible, landscaped areas should be designed to incorporate small-scale stormwater Best Management Practices (BMPs).

- ☐ The planting of native or naturalized vegetation is encouraged to reduce runoff rates and increase soil permeability.

- ☐ Shade trees should be required in each landscape island. Slotted curbs designed to facilitate the conveyance of runoff into the landscaped areas are encouraged.

Bicycle Parking

- ☐ Sheltered bicycle racks should be encouraged throughout the corridor and required near the entrance of each use over 10,000 square feet, with a minimum of parking accommodating two bicycles. Bicycle areas should be clearly visible to avoid security problems. The design and materials should be coordinated with the site and building design.

Designing for the Pedestrian Experience

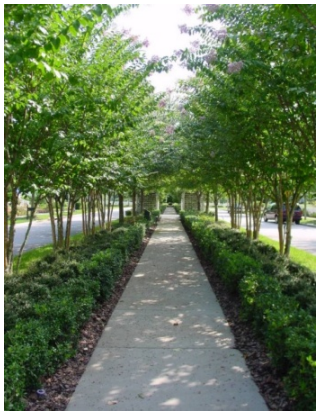
Purpose and Intent: The pedestrian experience for residents, consumers and employees must be addressed in (re)development to ensure a safe and pleasant walking environment. A well connected system of sidewalks and crosswalks should be required as part of any (re)development plan to be adopted by local governments.

Standards and Guidelines

- ☐ Continuous sidewalks and/or direct pedestrian paths should lead from the transit stop or public sidewalk to the front door of each building, providing a clear pedestrian path with limited interruptions.

- ☐ Signage should be use to guide pedestrians to and from the bus stops and points of entry/destination.

- ☐ Attractive, well-marked and safe pedestrian links between parking and buildings should be provided.



- ☐ Where pedestrians and vehicles interact, using striping, brick, stamped or colored concrete to clearly mark the pedestrian route.

- ☐ Introduce pedestrian amenities such as benches, waste-bins, shade trees, planters, pedestrian scaled lighting. Streetscape elements should be consistent within a project and should be consistent from project to project.

- ☐ Landscaping elements should help highlight pedestrian paths and screen blank walls.

- ☐ Street trees should be included along all street frontages.

- ☐ Walls, landscaped and paved areas should be regularly maintained.

- ☐ Signalized intersections should be designed to clearly identify the intended crossing locations, provide adequate buffers and refuges from automobile traffic. Where crossings should include a refuge island or median to minimize pedestrian exposure to traffic.

Additional Resources

A key resource to assist with pedestrian-oriented development can be the Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND) rating system, a joint effort between the U.S. Green Building Council, the Congress for the New Urbanism, and the Natural Resource Defense Council. LEED-ND promotes Smart Growth, walkable neighborhoods, and sustainable buildings and technologies.

7.0 Access, Design and Operation Plan

The Randall Road corridor has the potential to become a vibrant transit-oriented corridor in the future. The proposed improvement plan addresses access to bus stops, presents a set of design guidelines, and provides recommendations for improving the bus service/operations along the Randall Road segment of Pace Route 529. Using a phased approach, changes in bus stop locations and routing are proposed. In addition, land use design guidelines were prepared for possible use in future development or redevelopment in the corridor. Due to the suburban nature of the corridor and the current economic climate, the transformation of the Randall Road corridor is a long term goal and will require time and resources. One constraint may arise from the overall acceptance and utilization of transit and bus transit in the corridor and region. For the purpose of this study, three major areas of improvements were evaluated: Pace Route 529 service (routing and stop locations); surface infrastructure improvements; and land use strategies/design guidelines for redevelopment or new development.

Potential master planning of the Judicial Center, new or redevelopment plans, and/or future plans for roadway and intersection improvements should be considered in making improvements consistent with the overall strategy of the corridor. The overall goals of the proposed improvements are to provide safe access for pedestrians, enhance bus operations, and improve ridership along the corridor. The ridership information, public survey, infrastructure evaluation, and alignment assessment served as the basis of the development of the access, design and operation plan. Coordination meetings were held with Pace and Kane County to ensure that the plan is feasible.

For a complete listing of proposed surface infrastructure improvements for Tier 1 and Tier 2, please reference Appendix D for site photos depicting proposed improvements at each intersection.

7.1 Pace Route 529 Bus Service, Randall Road

The portion of Pace Route 529 north of Sullivan Road represents 46% of the route's length, but accounts for only 35% of the end-to-end travel time. The scheduled operating speed along Randall Road/IL Route 38 averages 22.8 mph versus 14.5 mph south of Sullivan/Randall Roads, a difference of over 50%. The comparatively high speed along Randall Road results in a higher quality service, especially for riders traveling between Sullivan Road and the Kane County Judicial Center.

For passengers boarding or alighting Route 529 along Randall Road, the advantage of higher bus speeds may be offset by inconvenient stops which currently lack passenger amenities. In addition, access to destinations often requires pedestrians to walk in areas without sidewalks and through non-pedestrian friendly parking lots. A strategy of routing buses through the corridor's developments, with stops being made at, or near, the entrances of major travel generators, would compromise the speed advantage of operating on Randall Road. The trade-off between direct/fast service and service that maximizes access was a major consideration of the study and discussed with Pace officials at various times.

The following sections discuss the recommendations for Pace Route 529 service, including route alignment, stops locations, connectivity with other transit, and service levels.

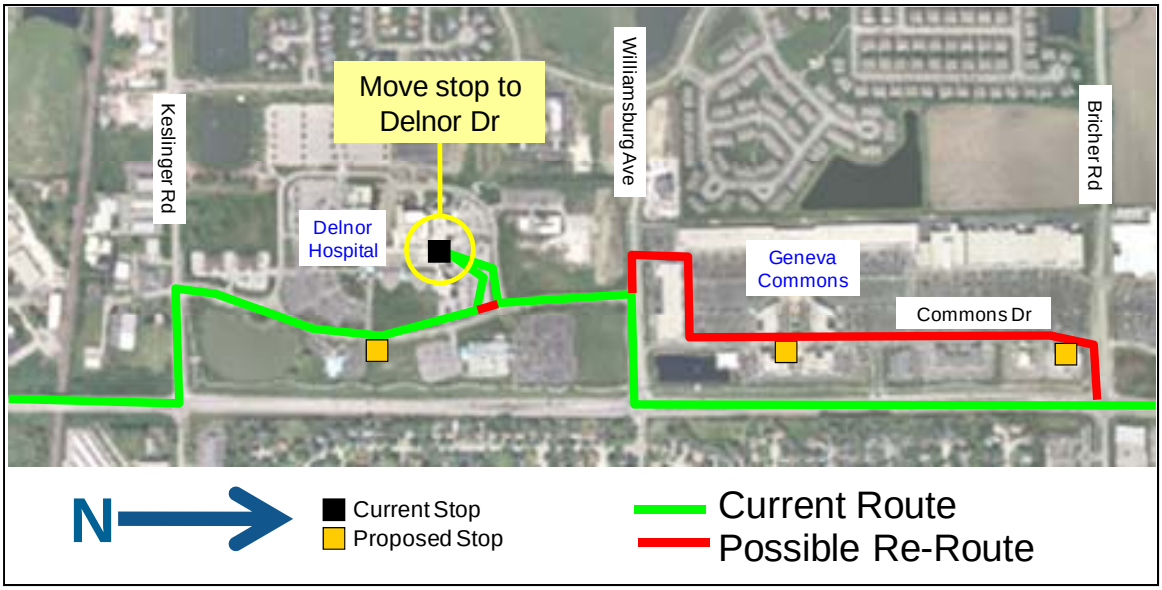
7.1.1 Route Alignment

Possible re-routes of Pace Route 529 to more directly serve some of the larger destinations in the corridor were examined. With one exception of Delnor Hospital/Geneva Commons, it is recommended that the route continue to operate on Randall Road. Some of the reasons various suggested re-routes were removed from further consideration included:

- Deviating from Randall Road would add travel time, degrading the service and lengthen many individual trips;
- Shifting to one side of Randall would mean the other side would be un-served;
- Most of the route deviations would involve operating buses in parking lots, which would create slower service and be more prone to accidents;
- Most of the developments in the corridor are not interconnected, so off-route deviations would likely mean returning quickly to Randall Road; and
- The interest of County and Pace officials to eventually create a Bus Rapid Transit (BRT) corridor could be complicated if travel patterns are influenced by near-term route deviations.

However, it is recommended that Route 529 be re-routed to provide direct service to Delnor Hospital and Geneva Commons. These proposed route changes are shown on Figure 7.1.A. Northbound trips currently serve Delnor by operating via Keslinger Road/Delnor Drive/Williamsburg Avenue, including a stop at the northeast entrance of the Hospital. Feedback from Pace operations staff indicated that the maneuver to the Hospital entrance is problematic, with tight turns in the parking lot aisles, and the entrance area is often blocked by parked vehicles. As such, it is recommended that the Hospital stop be moved to Delnor Drive. This stop relocation will involve a very short walk on existing sidewalk to the main Hospital entrance.

Figure 7.1.A Pace Route 529 Proposed Re-route,
Delnor Hospital and Geneva Commons - Northbound



The routing of buses through the Geneva Commons shopping area immediately north of Delnor is also recommended. Since Williamsburg Avenue is not a through street, a left turn from Delnor Drive to Williamsburg Avenue could be easily negotiated by a Pace bus. The ability of a bus to travel north along Commons Drive, then turn right on Bircher Road and left on Randall Road also proved to be manageable. Two stops are recommended in the Geneva Commons development. The revised route was time-tested several times during the AM peak period of Tuesday, January 19, 2010 to assess schedule impacts. The extra time to serve the Geneva Commons would be offset by the savings in not pulling into the northeast Hospital parking area. The three northbound time-checks of the revised route varied from one minute longer to two minutes shorter than the time-test of the current routing, which included the stop at the northeast Hospital entrance. Results of the time-checks can be found in Appendix E.

Figure 7.1.B. Pace Route 529 Proposed Re-route,
Delnor Hospital and Geneva Commons - Southbound

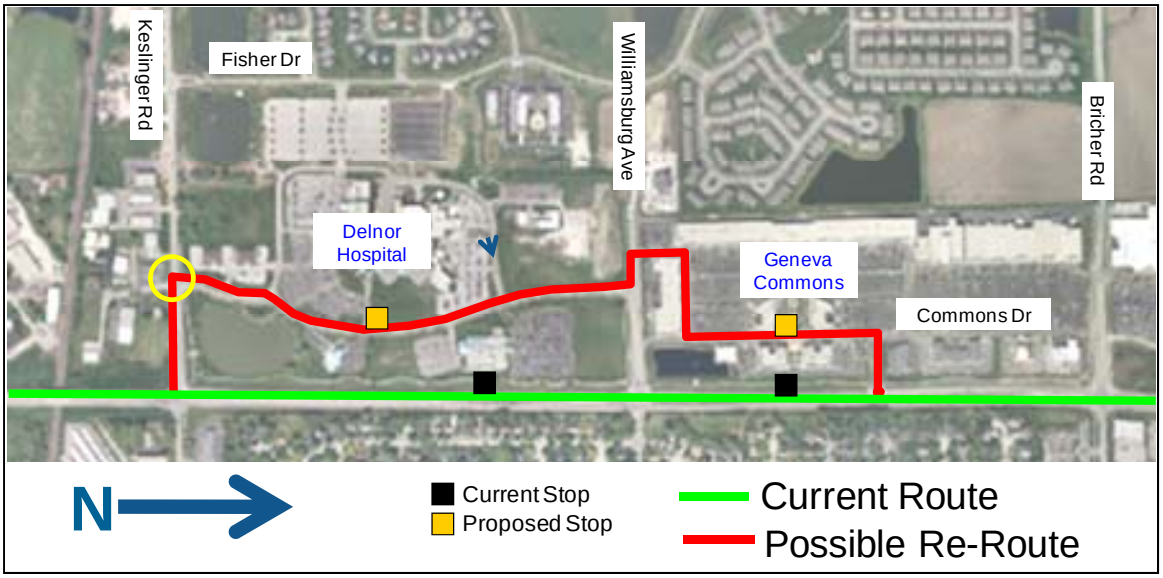


Figure 7.1.B shows the current and proposed southbound routings through Delnor Hospital and Geneva Commons. As described in Section 4, Assessment of Existing Deficiencies, the two current stops serving this route segment are located mid-block and require riders to walk over a steep berm to reach area destinations. The proposed routing would access Geneva Commons from the right-only, mid-block entrance of Randall Road south of Bricher Road, stopping at the promenade of the development on Commons Drive. Winding south through the development, the route would turn left on Williamsburg Avenue then right on Delnor Drive. This left turn does not appear to be a problem for bus movements since Williamsburg Avenue is lightly traveled. A Hospital stop would be made on Delnor Drive near the east–side main entrance. Continuing south on Delnor Drive, the route would turn left on Keslinger Road, a three-way unsignalized intersection. Keslinger Road is a heavily traveled 2-lane highway, which could present difficulty for buses to enter from Delnor. Three timing test runs were made and two encountered no waiting in making the turn. The third run involved a 90-second wait for both eastbound and westbound Keslinger Road traffic to adequately clear.

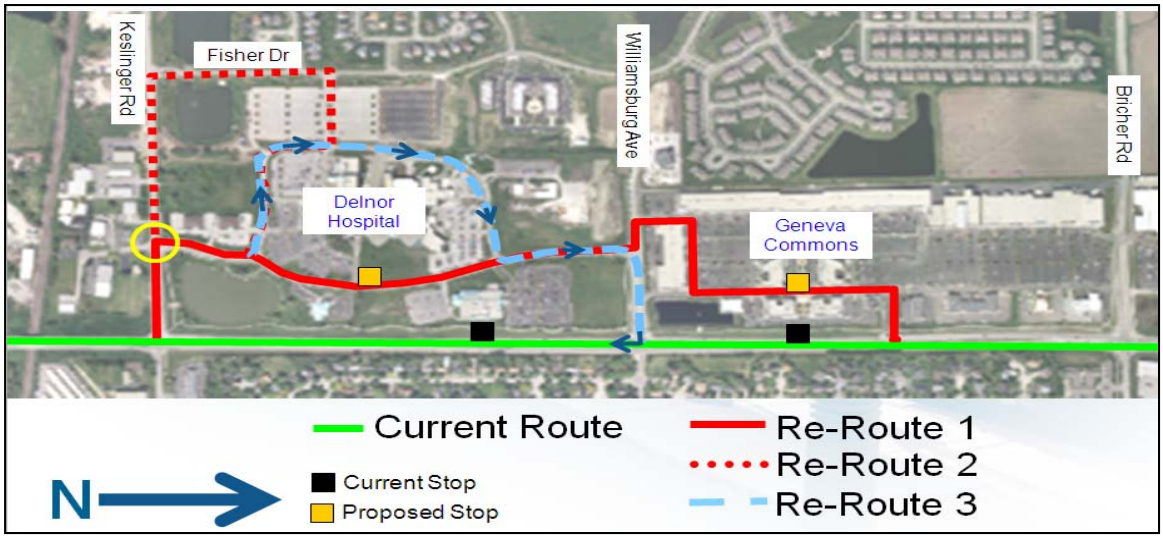
Two alternative routings were suggested, assuming the left turn from Delnor Drive to Keslinger Road is deemed unacceptable to Pace officials. These routes are shown in Figure 7.1.C:

- After making the east-side stop at the Hospital, continue south and west through the campus to Fischer Drive, turn left to Keslinger Road then left again. Being more removed from the Randall Road intersection, it is possible that there are more breaks in the Keslinger Road traffic flow than at Delnor Drive. In addition, there are future plans to install signals at this intersection, although it is undetermined when this improvement would be made.

- After making the east-side stop at the Hospital, continue south to the ring road around the campus, returning to Delnor Drive. The bus would reverse direction, traveling north to Williamsburg Avenue then back southbound on Randall Road.

Figure 7.1.C. Pace Route 529 Alternative Re-routes,

Delnor Hospital and Geneva Commons - Southbound



The alternatives to Delnor Drive would involve added travel time, but could still stay within the scheduling parameters of the current service. While this ultimately becomes a Pace decision, it is strongly recommended that the southbound service enters the Hospital campus, complementing the northbound service.

It should be noted that contact was made with Delnor Hospital and Geneva Commons about the changes in stop locations. Both found the changes acceptable, and are willing to work with Kane County, Pace and others to implement these recommendations.

7.1.2 Stop Locations

The bus stop is the first point of contact between the passenger and the bus service. How stops are spaced, located and designed influence people's use of and satisfaction with the service. This point came out clearly in the results of the online survey, as discussed in Section 5, in which respondents indicated that Pace Route 529 stops are not convenient, especially stops to riders' destinations. Also, respondents indicated that installing shelters and sidewalks were important investments.

Recommendations on bus stops started with the assessment of the current stop locations and needs in Section 4, Assessment of Existing Deficiencies. In addition, the following criteria were applied in formulating recommendations:

- Provide stops in both directions – All stops should have a convenient counterpart stop for travel in the opposite direction. Given the number of traffic lanes, volume of traffic, and speed of vehicles, it should be assumed that pedestrians will only cross Randall Road at signalized intersections. Thus, it is recommended that all mid-block stops be removed and relocated to an intersection.
- Provide far-side stops - Generally, stops should be sited immediately after an intersection, which may facilitate easier bus re-entry into traffic due to gaps created by intersection traffic signals. Pace staff recommended the use of far-side locations, although acknowledged that factors such as ease of operation, transfer situations, space availability, and traffic volumes could make near-side options preferable.
- Provide stops in proximity to travel generators – For the most part, all travel generators within the corridor should be within walking distance of signalized intersections.
- Provide stops in locations that accommodate passenger facilities and enhance bus operations – All sites should be consistent with Pace's Development Guidelines. Sites need to have adequate space for the construction of bus pads and shelters and be linked to the immediate area's sidewalk network.
- Provide for future development –identify future transit stops and facilities so that pedestrian and transit improvements can be incorporated into development plans.

The above factors were examined to determine the proposed location of bus stops, the relocation of existing bus stops or to add or eliminate existing stop locations. Refer to Appendix C for a summary of proposed bus stop locations. In general, it is recommended that stops serving both directions be placed at all signalized intersections, although implementation of some locations should wait for future development to occur.

The following provides a brief description of the recommended changes to stop locations:

Southbound

1 Kane County Judicial Center curbside – no change.
1A Kane County Juvenile Center curbside – no change.
2A EB on IL Route 38 at entrance to Meijer – no change.
2B EB on IL Route 38 in right turn lane to Randall Road - remove stop.
3A Potential new far-side at Bricher Road and Randall Road pending future ridership.
3 Move existing mid-block stop between Bricher Road and Williamsburg Avenue to interior road in Geneva Commons – as described in the re-route proposal above.
4 Move existing mid-block stop between Williamsburg Avenue and Keslinger Road to east-side Delnor Hospital entrance - as described in the re-route proposal above.
5A Potential new far-side stops at Fargo Boulevard and Randall Road.
5 Move mid-block stop between Christina Lane and Gleneagle Drive to far-side of Christina Lane.
6A New stop far-side of Gleneagle Drive.
6B New stop far-side of Fabyan Parkway.
6 Existing far-side at Mill Street – no change.
7 Existing far-side at McKee Street – no change.
8 Existing far-side at Wilson Street – move further south per Pace Development Guidelines.
8A Potential new far-side stop at Main Street, pending area development.
9 Existing far-side Orchard/Mooseheart Road – no change.
10 Existing far-side Ritter/Dogwood Road – move further to meet Pace Development Guidelines.
11 Existing near-side Oak Street – move further north to meet Pace Development Guidelines.
12 Existing near-side Ice Cream Drive – move further south to meet Pace Development Guidelines.

13 Existing far-side on Sullivan Road east of Randall – move further east to meet Pace Development Guidelines.

Northbound

1 Existing near-side on Sullivan Road east of Randall Road – move further east to meet Pace guidelines.
2 Existing far-side Ice Cream Drive – move further south to meet Pace Development Guidelines.
3 Existing far-side Oak Street – move further north to meet Pace Development Guidelines.
4 Existing far-side Ritter/Dogwood Road – move north to meet Pace Development Guidelines.
4A Potential far-side Orchard/Mooseheart Road pending development.
5 Existing far-side stop at Main Street – move to meet Pace Development Guidelines.
5A New stop mid-block Wilson-Main (guard rail on far-side of Wilson Street; right turn lane near-side).
6 Existing far-side at McKee Street – move to meet Pace Development Guidelines.
7 Existing far-side at Mill Street stop – move to meet Pace Development Guidelines.
8 Move mid-block Fabyan-Gleneagle to far-side of Gleneagle Drive.
8A Potential far-side stop at Fabyan Parkway – pending future ridership.
9 Existing far-side Christina Lane – no change.
9A Potential far-side stop at Fargo Boulevard and Randall Road – pending future ridership.
10 Remove far-side stop on Keslinger Road, west of Randall Road
11 Move existing stop at north entrance of Hospital to Delnor Drive near main entrance.
11A New stop inside of Geneva Commons as described in the re-route proposal above.
11B Potential new far-side at Bricher Road and Randall Road pending future ridership.
12 Existing IL Route 38 WB stop 1000' west of Randall Road – move to far-side of driveway, across from EB Meijer stop
13 Kane County Judicial Center curbside – no change
13A Kane County Juvenile Center curbside – no change

7.1.3 Connections with Other Services

Pace Route 529 connects physically with most of the routes operated by the Pace Fox Valley Division. There are eight routes that include a stop at the Aurora Transportation Center, and all but one provides all-day service hours similar to Route 529. Pace Route 907 operates limited peak period service from Oswego, making connections to Metra BNSF trains. Of the seven full-service routes, only Route 529 operates into the evening. The seven routes operate as a hub-and-spoke system, and routes generally arrive and depart to allow transfers. The Route 529 schedule includes a five minute layover at the Aurora Transportation Center to maximize the opportunities for transferring. The system provides good coverage of the Aurora area, and includes one route that serves areas east in Naperville (Route 530).


Aurora Transportation Center

An issue raised by several respondents to the online survey was that Pace Route 529 does not make convenient connections with Metra BNSF trains. One respondent commented: "The only reason I ever ride this bus is to access the Aurora Transportation Center. Please line up the schedules better because right now, buses arrive at ATC ten minutes after a train departs but forty minutes before the next one leaves." As a way of examining this issue closer, Table 7.1.3A shows schedules for north and south bound Route 529 midday buses and east and west bound BNSF trains. As can be seen, the schedules for the two modes do not coordinate well. Route 529 schedules are timed to meet other Fox Valley Division routes at the Aurora

Transportation Center, which allows riders to reach multiple destinations in the larger Aurora area served by the Fox Valley Division system. Thus, revising Route 529 schedules to instead have convenient meets with BNSF trains would mean sacrificing the coordinated service with local bus routes. Revising the entire Fox Valley local system of schedules to meet BNSF train times would seem to be disruptive to the community and would not be recommended. Revising the BNSF schedules to meet buses in Aurora would be not be possible given the many constraints of the rail service, including impacts at the other 25 BNSF stations, coordinating with Amtrak service, and maintaining operating windows for freight service. The ultimate solution would be to increase the frequency of Route 529 service (e.g., every half-hour from the current hourly service).

Table 7.1.3.A Midday Connections between Pace Route 529 and Metra BNSF at Aurora

529 SB Arrives	BNSF EB Departs	Wait Time (mins)	BNSF WB Arrives	529 NB Departs	Wait Time (mins)
8:32 AM	9:20 AM	48	8:11 AM	8:53 AM	42
9:32 AM	10:20 AM	48	9:02 AM	9:53 AM	51
10:32 AM	-	-	10:08 AM	10:53 AM	45
11:32 AM	12:20 PM	48	11:48 AM	11:53 AM	5
12:32 PM	-	-	-	12:53 PM	-
1:32 PM	2:20 PM	48	1:48 PM	1:53 PM	5
2:32 PM	3:20 PM	48	2:54 PM	2:53 PM	X
3:32 PM	3:50 PM	18	3:25 PM	3:53 PM	28
4:32 PM	4:50 PM	18	3:58 PM	-	-
5:32 PM	6:20 PM	48	4:13 PM	4:53 PM	40

Many riders travelling between areas north of IL Route 38 and the Kane County Judicial Center transfer between Route 529 and Pace Route 801, Elgin-Geneva. Route 801 is a bi-directional route between Elgin and IL Route 64 in St. Charles, and travels in a large clock-wise loop to Charlestowne Mall, Geneva Metra Station, IL Route 38/Randall Road, returning to IL Route 64. Of the eleven trips passing through the IL 38/Randall Road intersection, five trips continue to the Judicial Center, about a mile west. It is presumed that Route 801 riders transfer to and from the six trips that do not deviate. Table 7.1.3B shows these six trips of Route 801, with the times at IL 38 and Randall. As can be seen, Route 529 times for both directions do not make convenient connections to Route 801. Potential riders of Route 529 and Route 801 are often seen walking the dangerous stretch of IL Route 38 between the Judicial Center and Randall Road. Presumably because of the time differences between these two routes. In discussing this issue with Pace staff, it was indicated that planning for restructuring Routes 801 and 802 was in progress, and these scheduling issues will be addressed at that time.

Table 7.1.3.B Midday Route 529 and 801 Connections

Wait Time (mins)	Route 529 EB IL 38 & Randall	**Route 801 NB IL 38 & Randall**	Route 529 WB IL 38 & Randall	Wait Time (mins)
	no service	**6:09 AM**	*no service*	
16	9:51 AM	**10:07 AM**	10:34 AM	27
26	12:51 PM	**1:17 PM**	1:34 PM	17
49	1:51 PM	**2:41 PM**	3:34 PM	53
33	3:51 PM	**4:24 PM**	4:34 PM	10
30	4:51 PM	**5:21 PM**	5:34 PM	13

In addition to reviewing connectivity with existing transit in the Pace Route 529 corridors, the project also considered the possibility for new bus services in the Randall Road corridor that could be coordinated with Pace Route 529. Local circulator routes can be coordinated with the fast, line-haul service on Randall Road. These services would be short in length and include flexible-routing features, where service has the flexibility to move within a given service area but is still scheduled to arrive at selected time points. Pace has successfully implemented a version of this in Joliet. Pace Route 510, West Joliet Call-n-Ride service provides service to neighborhoods in west Joliet with the bus scheduled to be at a local hospital 32 minutes after each hour. Riders call to reserve pick-ups one-hour in advance. Their call goes directly to the bus driver. In the case of the Randall Road Corridor, the call-in service could be set up to meet Route 529 buses.

Concurrent with the Randall Road Route 529 Study, the St. Charles Circulator Feasibility Study[14] sponsored by the City of St. Charles evaluated the feasibility of a circulator system between two transit-oriented developments in St. Charles, and the Geneva Metra Station. The City's study concluded that there was insufficient demand to justify a circulator route. In an e-mail from the City's project manager for the study,[15] the following recommendations were proposed.

- Introduction of transit to St. Charles citizens during seasonal or special events when transit may be seen as a desirable alternative to driving their personal vehicle.
- Exploration of the Pace "call-n-ride" concept to serve the need today and perhaps be the transition to a circulator route.
- Express transit run between the Geneva Metra station and a key St. Charles location that would service persons commuting to Chicago.

The conclusion derived from the St. Charles study to not advance the development of a circulator route at this time would seem to indicate that pursuing this concept in other portions of the Randall Road corridor would not be worthwhile.

[14] http://www.ci.st-charles.il.us/departments/publicworks/TrafficAndTransportation/transitplan.html

[15] Mark Koenen, Director of Public Works, City of St. Charles, March 25, 2010.

7.1.4 Service Levels

Route 529 operates a schedule averaging sixty minute headways (the time between buses in the same direction). Weekday service hours are between 6:00 AM and 9:30 PM. Saturday hours are 7:00 AM and 9:30 PM. These service levels are not dissimilar for other Pace fixed-route service outside of Cook County. It could be desirable to consider more frequent peak period service, for example thirty minute headways. The relatively low ridership and productivity of the Route, and the Randall Road segment in particular, (see Report Section 2.1) could make justification for his expansion difficult. One possibility is the previously mentioned restructuring of Routes 801 and 802, which could involve shifting additional trips to Randall Road. The County should work with Pace in this regard.

7.2 Surface Infrastructure Improvements

This study proposes a two phase approach to address the infrastructure needs along the corridor. Using the deficiencies identified in Section 4, short term improvements are grouped as Tier 1 and long term improvements are grouped as Tier 2. Long term improvements are considered in conjunction with general land use development strategies/design guidelines for future developments or re-development along the corridor.

- Tier 1 short-term improvements represent corrective measures to address immediate deficiencies at each location identified in previous sections. Potential re-routes of bus service at Geneva Commons and Delnor Hospital were proposed as described in Section 7.1.

- Tier 2 long-term improvements represent corrective measures that will be considered at a later time if ridership changes, when (re)developments occur along the corridor, and/or when funding becomes available. Additional infrastructure investments may be warranted to improve or enhance the transit experience. Future studies are recommended for Tier 2 proposed improvements.

Described below are the overall goals of Tier 1 and Tier 2 improvements.

<u>Tier 1 Level Improvement – Short Term</u>

Goals:

- Provide basic amenities for users of Pace Bus 529 (waiting pads, shelters, ADA access ramps).

- Improve connectivity to existing sidewalks from bus stop (connecting walkways).

- Add stops to complement both directions of travel or relocate bus stops to accommodate and promote ridership.

Under Tier 1, one of the goals is to install immediate physical improvements at selected bus stop locations to provide access and enhance the riders' experience. Basic waiting areas and bus shelters are recommended for safety and protection from weather at most locations except for those that may be moved or relocated in the near future. Not all existing bus stop locations are connected to sidewalks. Hence, paved waiting areas and walkways are recommended at most locations within Tier 1 improvements to connect to existing sidewalks and offer safe access for pedestrians from bus stops to destinations. Crosswalks are also recommended at intersections to provide a safe way for pedestrians to cross intersections. At all locations where crosswalks are present or will be installed, ADA access ramps should be installed.

Discontinuous sidewalk

Route 529 bus stop without landing and walkway

Tier 2 Level Improvements – Long Term

Goals:

- Provide complete access (connectivity) from bus stops to destinations.
- Improve shoulder widths and/or construct concrete turnouts to better facilitate movement of buses in and out of the traffic stream.
- Provide pedestrian enhancements (lighting, landscaping, other features).

Within Tier 2 improvements, additional bus stop locations are recommended to better serve existing and future riders. With the goal to place bus stops at every signalized intersection along the corridor, bus stop locations were evaluated in relation to potential future (re)developments. Bus stop signs on metal posts are considered at some new stop locations based on projected transit demand resulting from future developments. Concrete bus turnouts are considered at some transit stop locations to provide improved structural composition over current asphalt sections. Under Tier 2 improvements, it is recommended that County staff monitor ridership at new and relocated stops to determine the cost benefits of constructing concrete bus turnouts.

For Tier 2 improvements, it is recommended that new sidewalks be constructed to provide complete access from bus stops in all directions, whether there are existing sidewalks or not. Additional enhancements to improve the quality of stops and waiting areas such as lighting, landscaping around bus stops and access routes, and signage should also be considered under the Tier 2 improvements. Subsequent studies are recommended for detailed analysis of these additional enhancements.

A summary list of proposed improvements both in Tier 1 (short term) and Tier 2 (long term) is attached in Appendix C. A set of aerial photos along Randall Road is attached in Appendix D to depict specific improvements at each intersection in terms of location, limits, and constraints.

7.2.1 Evaluation Criteria for Proposed Improvements

Various field meetings were held with Kane County and Pace staff to determine feasible and reasonable improvements along the corridor. Guided by the goals of Tier 1 and Tier 2 improvements, the recommended surface infrastructure improvements at each bus stop were developed using the following parameters.

Analyze Existing Site Conditions – Due to varying site conditions, each bus stop location and its surrounding areas were evaluated with Pace and Kane County staff. The existing topography and infrastructure at or near bus stop locations were factors in developing recommended improvements. Utility junction boxes, drainage ditches, culverts, and landscaped berms impacted the adequate installation of pedestrian friendly improvements. In most cases, the County has sufficient right of way along the corridor's setbacks to accommodate these improvements. Proposed improvements were evaluated to be feasible and constructible within the constraints of the existing conditions.

Signal equipment blocking extension of sidewalk, SW corner Randall & McKee St., view NW

Drainage area near stop, Randall Road south of McKee St., view S

Minimize Right of Way Impacts:

To determine the available County right of way along the corridor, the existing right of way information was overlaid onto aerial photos along the corridor. This information is useful in determining the limits of improvements with minimal right of way impacts. Hence, the cost of improvements can be evaluated without additional right of way acquisition. See Appendix F for the aerial map with the County right of way limits. In some cases, it is more cost effective to locate the access walkways away from existing ditches or culverts rather than relocating the existing drainage structure/system.

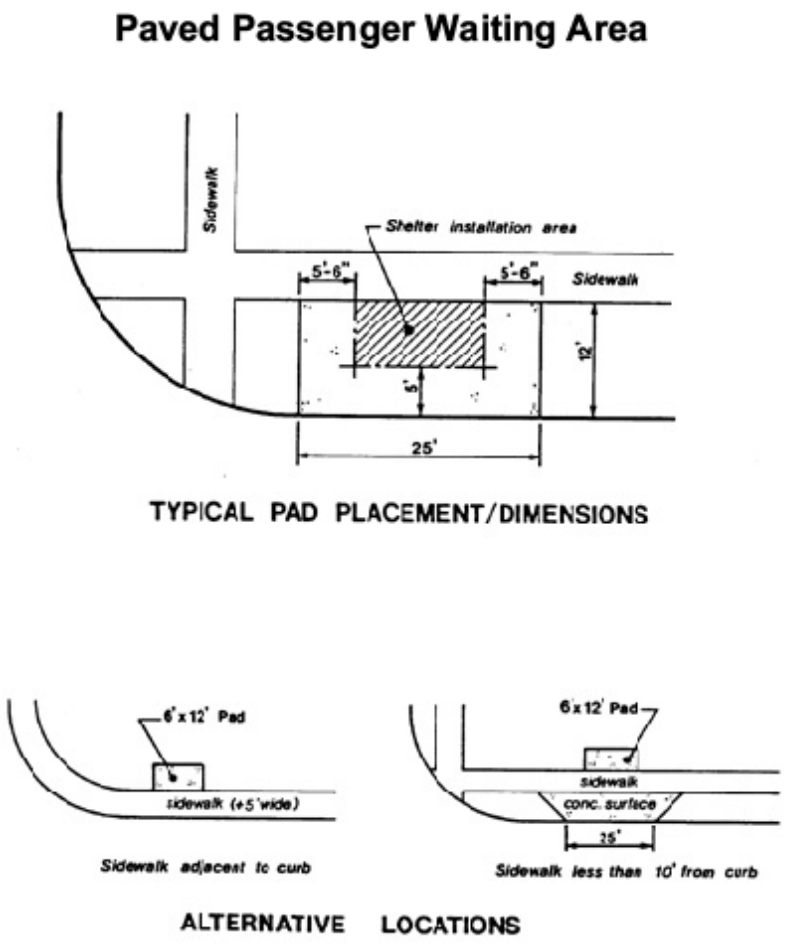
Install Basic Pedestrian Amenities: One of the major results from the on-line survey was the need to provide basic amenities such as bus shelter, waiting pads, and connecting walkways to and from bus stops. Pace recommends that paved waiting areas be placed at high volume transit stops and in new developments that will potentially generate high transit use.

Pace Bus Shelter, Lutheran General Hospital, Dempster St., Park Ridge

NE Corner Randall & McKee, view S

Pace bus shelters are recommended to be installed at most of the bus stop locations to address safety and protection from weather conditions. A minimum of 4 inch thick concrete waiting pad is recommended extending 25' back along the corner back tangent point. Paved areas between the back corner tangent point to the intersection of the sidewalk and curb is optional. Pace bus stop shelters and waiting pad design criteria are detailed in Pace Development Guidelines (November 1999). Figure 7.2.1.A shows the Pace Development Guidelines for paved waiting areas. At some locations currently without a bus stop, a bus stop sign and post is proposed. Those bus stops do not require a bus shelter at Tier 1 because ridership data shows insufficient usage. However, a potential rise in ridership at those locations may warrant the investment of a bus shelter, waiting pad, and connecting walkways during Tier 2 implementation.

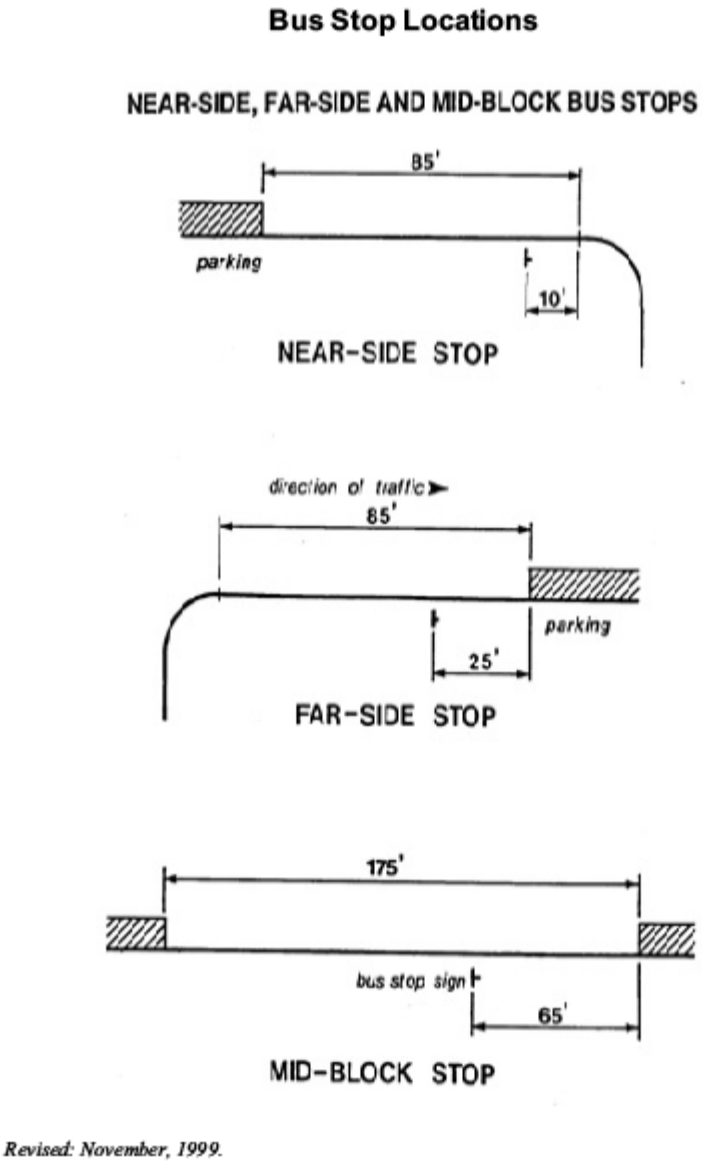
Figure 7.2.1.A Pace Development Guidelines on Passenger Waiting Area



Revised: November, 1999.

Locate Bus Stops in Relation to Intersections: According to the Pace Development Guidelines, the location of a bus stop should have a minimum of 25 feet from the corner and a maximum of 85 feet for a far side stop. Existing stops recommended to be relocated or new stops should adhere to these guidelines. See Figure 7.2.1.B below for design requirements for near-side stops and mid-block stops.

Figure 7.2.1.B Pace Development Guidelines for Bus Stop Locations



Revised: November, 1999.

Although Pace prefers far-side stops at signalized intersections, some stops may be better suited to be near-side to avoid a right-hand turn lane or due to other obstructions. For example, the intersection at Wilson Street and Randall Road, the far side location has an existing guardrail along the curb line. The proposed bus stop location is placed at mid-block to not interfere with the guardrail and to allow riders access to streets to the north and south streets. Two other locations require the bus stop be located at near-side due to undeveloped parcels at the far-side. There are no current plans to develop the parcels; hence, it will serve riders better to locate the bus stops closer to existing destination points.

Install Crosswalks and ADA Ramps at Intersections:

Federal law requires that equal opportunity be provided for the handicapped to access public facilities owned/maintained by federal, state, and local governments and agencies. It is recommended that full accessibility be provided to each stop from all directions if planned improvements, such as pads and shelters, will occur at that same location. In many cases, a crosswalk is provided on one side of the street but not the other. For a typical 4-phase signal, adding a matching crosswalk to the other side should not require much change to the timing since the crossing time is already accounted for. Based on the existing Synchro files along the corridor, and it is recommended that clearance intervals be increased to meet new MUTCD standards. Adding crosswalks and access ramps could result in more bus riders and pedestrians and less traffic.

SW Corner Randall & Ritter St., view E

NW Corner Randall & Oak St., view S

Access to Bus Stops – The intent of proposed improvements is to provide access to existing and new bus stops from origin to destination points along the corridor or vice versa. There should be a safe path to the bus stops without obstructions. Walkways are recommended to provide a direct path to the bus stop and to major destination points. Concrete walkway widths should adhere to the County's 5 feet minimum width or local jurisdiction street design standards, when appropriate. In some cases, the new proposed walkway from the bus stop would need to bridge over existing ditch areas or drainage culverts. A detailed field survey of the site will be required to determine special designs for those walkways. Due to the steep drainage ditches at two locations, Gleneagle Drive and Mill Street, the walkways may need to be retained to bridge over drainage ditches. At one location, the proposed mid-block stop between Wilson Street and Main Street, it is more cost effective to build the connecting walkways further into the setback from Randall Road to avoid the existing drainage culvert.

NE Corner Randall & Main St., view E

North of Christina Lane, east-side of Randall, view N

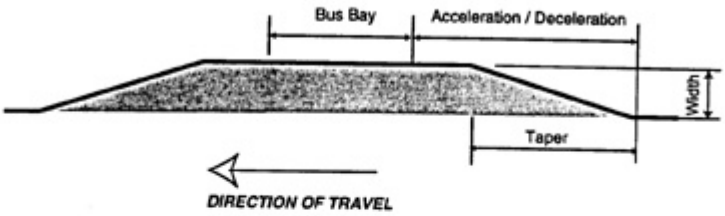
Concrete Bus Turnout Sections – Almost all of the bus stops along the study area do not have bus turnouts. Bus turnouts provide an en route bus with a pull-out that does not interfere with traffic flow and provides a safe waiting area for passengers. Most buses pull up on the asphalt shoulder sections along Randall Road to board and alight passengers without adequate space to decelerate and then re-enter into the traffic stream. Bus turnouts are ideal when placed in mid-block locations, allowing buses to re-enter traffic more easily during gaps in traffic flow. Existing asphalt pavement sections along the shoulders of Randall Road are insufficient to provide the structural strength for repeated bus operations. Hence, concrete sections at bus turnouts are recommended. With available right of way, some locations with the high transit use may warrant the installation of bus turnout sections. See Appendix C for locations identified for possible bus turnout sections under Tier 2 Improvements. The recommended width for turnout designs is 15 feet for arterials such as Randall Road (see Figure 7.2.1.C). These dimensions will provide bus operators with the space needed to properly maneuver and stop their vehicles at stops.

SW Corner Sullivan Rd. & Randall view W

Aurora Transportation Center

Figure 7.2.1.C Pace Development Guidelines for Bus Turnout Design

Bus Turnout Design and Specifications



Speed	Taper Length	Bus Bay Length	Bus Bay Width	Acceleration/ Deceleration Lanes
30 mph	50' each	50' each	15'	100' each
40 mph	50' each	50' each	15'	125' each
50 mph	50' each	50' each	15'	175' each
55 mph	50' each	50' each	20'	200' each
60 mph	50' each	50' each	20'	250' each

Revised: November, 1999.

7.3 Potential for Transit Signal Priority

Transit Signal Priority (TSP) is an operational strategy to facilitate the movement of transit vehicles through signalized intersections by altering signal timings to reduce delays and improve efficiency. TSP is often one of the primary components to an express bus route or a Bus Rapid Transit system. There are two types of TSP strategies used throughout the country, passive priority and active priority.

Passive priority strategies do not require the hardware and software investment of active and adaptive priority treatments. Passive priority operates continuously, based on knowledge of transit route and ridership patterns, and does not require a transit detection / priority request generation system. Since the signals are coordinated for the flow of transit vehicles and not other traffic, other traffic may experience unnecessary delays. As Randall Road carries a great deal of traffic of which the Pace Route 529 is only a small component of, the application of a passive TSP strategy is inappropriate for this corridor as it could negatively impact the other users of this roadway.

Most active priority strategies operate to provide green time specifically when needed for transit vehicles. They are most effective when transit vehicles operate on a dedicated lane system so that other vehicles in front of the transit vehicle (like turning vehicles yielding to a pedestrian) do not impede its progress. As the Pace Route 529 operates in mixed traffic with multiple lanes, active priority strategies would increase green time or redistribute green time to Randall Road, affecting all other traffic for the sake of the transit vehicle. Platoons of automobile traffic, with quicker acceleration and more aggressive drivers will typically travel through the roadway network slightly faster than buses. Thus with active transit signal priority strategies in place the typical motorist on Randall Road, which greatly outnumber the number of buses using the corridor, could see reduced travel speeds or additional delay. Side streets could also see increased delays as green time is shifted away from their movement in favor of the transit vehicle. With the majority of green time already allocated to Randall Road at minor intersections (noted in Table 3.3B), and Levels of Service for east-west cross streets in the “D” to F” range (noted in Table 3.3C), altering the balance of green time allocated to Randall Road could further exacerbate existing delays on cross streets.

Ultimately, investing in TSP technology does have the potential to reduce travel times for transit vehicles by slightly reducing delays experienced within the traffic stream, but in general transit vehicle delays can be caused by a multitude of other factors including vehicle dwell/passenger boarding time, bus kneeling or ramp extension delays to pick up the handicapped. These components often have a greater impact on transit time than delays experienced at traffic signals. Improvement strategies such as level boarding to eliminate the time needed for buses to kneel or extend ramps for the handicapped, increase use of automatic fare collection equipment, or pre-paid boarding at major origin points to reduce the amount of time buses wait for passengers to pay their fares can be even more effective for increasing the service speed of a transit vehicle. These strategies are often coupled together as part of a Bus Rapid Transit (BRT) system, discussed in Section 7.4.

7.4 Potential for Bus Rapid Transit

Bus Rapid Transit (BRT) is a general term used to identify an integrated public transportation system with a complete package of improvements to infrastructure, operations, and service control procedures all under a new branded service. The system is intended to use buses to make transit faster and more efficient than ordinary service.

The improvement recommendations presented under the Tier 1 and 2 improvements can lay the groundwork for a future BRT system by improving access to stops for transit vehicles and transit users and improving station waiting areas.

Additional BRT components can be considered in groups or individually as the availability of funding allows, as each can bring amenities to improve the quality of service for Pace Route 529 users. Many of these

components do represent a significant capital cost and investment in infrastructure and/or technology, and at this point ridership needs to increase significantly before these components make sense from a cost-benefit perspective.

According to the Federal Transit Administration and the BRT Policy Center (www.gobrt.org), BRT system components can be grouped under seven general categories:

- Running Way
- Stations
- Vehicles
- Service and Operating Plans
- Route Structure
- Fare Collection
- Intelligent Transportation Systems (ITS)

The actual components to each BRT system will vary, but the types of improvements can include:

- Running Way
  - Dedicated bus lanes to keep transit vehicles out of general traffic congestion
  - Signal timing/coordination improvements and/or Transit Signal Priority
  - Roadway design and reconfiguration to improve access to stops for both riders and transit vehicles
  - Other roadway improvements to reduce delay to transit vehicles
- Stations
  - Aesthetic and comfort improvements to stations and waiting areas
  - Level boarding platforms that eliminating the need for transit vehicles to kneel or extend ramps
- Vehicles
  - Multiple door boarding
  - “Green” vehicles
- Service and Operating Plans
  - A specifically branded service
  - Increased stop spacing to increase speed of service
  - Increased frequency of service
- Route Structure
  - Integration of BRT routes with other transit modes and local service
- Fare Collection
  - Smart cards and other technologies to speed the boarding process
  - Pre-paid fare collection at stops instead of on-board
- ITS
  - Enhanced transit vehicle tracking and headway management
  - Enhanced customer information systems

8.0 Implementation Strategies

This section presents strategies for implementing the short and long term recommendations presented in this report. Table 8.0A provides a summary of the recommendations, separated between short term and long term.

Table 8.0A – Summary of Randall Road Pace 529 Recommendations

	Short Term Action	Long Term Action
Reroute via Delnor Hospital and Geneva Commons	X	
Finalize Stop Locations		
No Change	9	0
Remove	2	0
New Stop	4	7
Move	18	0
Infrastructure Improvements		
Shelters	23	9
Turnouts	0	15
Crosswalks/Ped Signals	25	14
Waiting Pads	22	8
ADA Access	18	14
Sidewalk Links (sites)	16	25
Transit Priority Systems		Future Study
Land Use Development Strategies/Design Guidelines	X	X

The implementation strategy requires an order of magnitude range of capital costs associated with the improvements to guide the development of the funding plan. Cost estimates were based on unit costs obtained from recent construction work by Pace at suburban corridors. An order of magnitude construction cost estimate is provided in exhibit G with a list of assumptions. As a general guide, soft costs for the planning and engineering design of these improvements would be an additional 10% of total construction cost during the project implementation period. As the implementation plan develops, these costs will need to be refined to reflect current market construction costs and the updated scope of work requirements. The total Planning Cost Estimate for Short Term Improvements is at $800,000. The Long term improvements planning cost estimate is not included at this time.

A preliminary schedule for the implementation of the short term improvements is developed for planning purposes only. It is anticipated that all of the construction work is within County right of way; hence no right of way easements will be required. Utility relocation may be required and will be determined during the design phase. One construction contract will be most efficient in terms of a single contractor being responsible for

consistent work throughout the corridor. However, the short term improvements could be installed in phases to incorporate future planned work at different locations along the corridor.

A preliminary schedule for implementation of the short term improvements is as follows:

- Advisory Council approves Study recommendations – Winter 2010
- Design – January 2011 thru April 2011
- Construction - May 2011 thru November 2011

Effecting the various improvements shown on Table 8.0A will require participation by a number of entities. These include the following, along with their respective roles:

- Advisory Council – approval of study recommendations, implementation advocacy
- Kane County – overall coordination, design of infrastructure within County highway rights-of-way,
- Pace – final approval/implementer of Route 529 service and stops, potential to oversee infrastructure construction,
- IDOT – stop infrastructure on IL 38,
- Private property owners
- Municipalities - sidewalks construction and maintenance outside of the County highway rights-of-way, control of land use development in the corridor; work with developers to provide transit and pedestrian infrastructure as part of development project approvals
- RTA – funding
- Land Developers – follow recommended land use and design guidelines, provide transit and pedestrian infrastructure as part of development project approvals

The following three sections describe short term and long term implementation steps, and funding options.

8.1 Implementation of Short Term (Tier 1) Recommendations

As indicated in Table 8.0A, short term improvements were identified to address the area of most significant need, that is, providing convenient and safe boarding points. Improvements include installation of bus shelters, bus pads, and connecting walkways. In addition, intersection improvement work was recommended to permit convenient and safe pedestrian movements crossing roadways, including the addition of crosswalks, pedestrian signals, and ADA access ramps at respective corners. Proposed improvements are listed in Appendix C and are organized according to each recommended corridor stop from the Kane County Judicial Center to Sullivan Road. A minor adjustment to the route was also recommended through the Delnor Hospital Campus and Geneva Commons.

The most significant obstacle to implementation of most plans is obtaining the necessary funding. This project has the fortuitous advantage of an $800,000 federal grant awarded to Pace specifically for transit infrastructure

for the Randall Road corridor. Based on the availability of this funding, the recommended implementation steps would involve the following:

1. Gain consensus of Advisory Council on the recommendations. This includes confirmation of the recommended short term stop locations and the re-route proposal.
2. Pace approval of the short term stop locations and re-route recommendations. Pace has been a participant to the study and has been aware of the recommendations. It is understood that Pace and the County have been conferring on the specifics of the changes proposed, from both operational and safety perspectives.
3. Constructing the proposed stop improvements will need to be based on site-specific engineering and design drawings. Kane County has already agreed to perform this step. In addition, intergovernmental agreements between the Pace and the County (and possibly between Pace and municipalities, Kane County and municipalities, and Pace and private land owners) may be required to handle issues such as maintenance and liability.
4. Construction is to be handled by Pace using a Contractor currently under contract.

The following local municipalities are involved in the Route 529 Improving Bus Access Plan:

- St Charles – Kane County Judicial Center to Bricher Road
- Geneva – Bricher Road to Fabyan Pkwy
- Batavia – Fabyan Pkwy to Orchard Rd
- North Aurora – Orchard Rd to I-88
- Aurora – I-88 to Sullivan Blvd

Pace is the ultimate owner of the shelters and will perform maintenance as required. One possible arrangement that Pace has used is to place advertisements on the shelters to generate revenue to recoup initial capital costs and regular maintenance costs. Kane County has determined that they will utilize shelters that contain no advertisement. Bus shelters are maintained by a Pace contractor who also performs snow removal and damage repairs.

8.2 Implementation of Long Term (Tier 2) Recommendations

The long term improvement phase should be developed through a combined federal, state, regional, and local funding strategy. In addition, municipalities and private development should assist in providing transit infrastructure, such as sidewalks, as a part of the development approval process. Along with continuous coordination with municipalities and Pace, Kane County should explore the various funding options available for implementation.

In summary, the long term strategy concept plan includes the following:

1. Work required is contingent on further studies and monitoring of how the ridership along the impacted segment of Route 529 evolves – County should continue to work with Pace.

2. The long term concept will require additional evaluation to determine the cost effectiveness of the improvements proposed in this Study; additional funding from the RTA to support future studies should be sought.

3. Continue to promote the corridor's land use design guidelines and long term goals to help drive the transit demand and validate or justify the proposed improvements – Kane County should continue to work with municipalities in advocating and implementing the land use guidelines.

4. Continue to seek innovative funding sources for future development and improvement options.

5. Monitor the performance of Route 529 service to identify when increased frequency of service is warranted. The County and municipalities should work with Pace when ridership levels have increased. Local government should support Pace in seeking funding to demonstrate the impacts of increased frequencies, through programs such as the RTA's Innovation, Coordination and Enhancement (ICE) Program.

8.3 Funding Options

Federal Funding Options – The federal government supports the development of transit projects through the Federal Transit Administration (FTA). The FTA reimburses expenditures on transportation infrastructure investments at federal matching proportions prescribed individually for each program, while the remainder of the project capital costs is borne by state and local project funding contributions.

Transit projects can utilize a wide range of federal funding options as part of their funding package for planning and implementation phases. These program funds can be combined with other federal program sources within a project's financial plan to enhance its viability. The state and local funding sources are similarly non-exclusive and should be included among the several funding sources pursued by the County. Very often, a successful financial plan combines funding from multiple federal, state, local and non-governmental sources.

Pace Appropriated FTA Funds: One of the main funding sources identified for the Randall Road Route 529 Plan is to coordinate with Pace in securing funding from appropriation grants for the Corridor. In spring of 2010, Pace was awarded a grant from FTA for $800,000 specifically for transit infrastructure improvements along the Randall Road corridor. This funding is necessary to implement the short term recommendations of the Randall Road Route 529 Plan.

Section 5309 of the federal program provides three types of capital funding including (1) fixed guideway modernization funds (formula), (2) new starts funds (discretionary) and (3) bus allocations (discretionary). These capital assistance grants made to states and local agencies may fund up to 80 percent of net project costs. However, the more recent grants have reflected a new cap of 50 percent of funding for New Starts

program projects. The first two types of capital funding would not be applicable for Randall Road short or long term plans due to the size and type of improvements. However, the third program provides discretionary funding to transit capital projects, including bus related facilities.

Congestion Mitigation/Air Quality (CMAQ) program is intended to aid in the management of traffic congestion and the improvement of air quality. The funds are available to areas designated by the Environmental Protection Agency as "non-attainment" or "maintenance areas" based upon compliance with national ambient air quality standards for carbon monoxide and ozone. Eligible activities under the CMAQ program include transit system capital expansion and improvements that are projected to increase ridership, alternative fuel projects, public/private partnerships, travel demand strategies, and construction of high-occupancy vehicle lanes. The Randall Road Route 529 Plan may be a potential candidate for the CMAQ program due to its goal of improving ridership along the corridor and removing cars from the roads.

State Funding Options –

Illinois Tomorrow Corridor Planning Grant Program – This funding source will support planning activities that promote the integration of land use, transportation and infrastructure facility planning for transportation corridors. The Randall Road Corridor may be eligible for funding under this program, in particular, for future studies on Bus Rapid Transit (BRT). The state's contribution is at 80% with a local match of 20%.

High Growth Cities – The requirement for eligibility under this program is to help relieve congestion for municipalities with a population over 5,000. An increase in population greater than five percent, either from 1990 to April 1, 1999 or from 2000 to June 30th of each year, as reported by the US Census Bureau is required. No local match is required under this program. The Randall Road Corridor traverses multiple high growth cities and this funding source should be explored.

Regional Funding Options –

RTA Community Planning Grants (Formerly RTAP) – This funding source is available for local communities for planning projects that benefit local communities and the RTA transit system. Further planning studies will be required to study the Bus Rapid Transit potential of the Randall Road Corridor in the long term and this grant may be applicable as a benefit to both the local communities and the RTA's transit system. Eligible project types are Station/Area transit-oriented development, local transportation improvement plans, coordinated Paratransit Improvement Plans, and Detailed Implementation Plan. A local match of 20% is required for Federal funding.

RTA Subregional Planning Program – This program provides funding and planning assistance for county, subregional or corridor level transit and land use focused planning studies that serve the traditional suburb-to-city and intra-urban markets, as well as the non-traditional city-to-suburb markets. The program is available to counties, townships, councils of government/municipal associations, and groups of two or more municipalities in the RTA six-county service area, the City of Chicago, and the RTA Service Boards.

RTA Innovation, Coordination and Enhancement (ICE) Program – This funding source is a competitive funding program and provides operating and capital assistance to enhance the coordination and integration of public transportation and to develop and implement innovations to improve the quality and delivery of public transportation. Projects funded through this program advance the goals of the RTA by providing reliable and convenient transit services and enhancing efficiencies through effective management, innovation and technology.

List of References

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