# 2. EXISTING ROUTE STRUCTURE AND SERVICE LEVELS

## Background

In the Study Area, as in most of the Metro Transit network, there are two distinct route structures. The "base" service structure operates all day and the "peak" service structure operates just during weekday rush hour periods.

## Base Route Structure

The base route structure in the Study Area is designed to meet a variety of transportation needs. The overall structure is both radial (oriented to downtown St. Paul and/or Minneapolis) and a grid of cross-town routes perpendicular to the radial routes. These crosstown routes are spaced about 1-2 miles apart. Crosstown routes in St. Paul generally extend north and south. Many East Side routes extend to the Maplewood area, where they terminate at the Maplewood Mall Transit Center or to Sun Ray Transit Center. The Maplewood Mall Transit Center is a timed-transfer focal point where four local routes connect. Similarly, the Sun Ray Transit Center is a timed-transfer focal point where five local routes connect.

## Peak Route Structure

During peak hours, the base network remains, generally with improved service levels, and is overlaid by additional peak-only commuter routes. Peak-only routes from the East Side area of St. Paul offer local pick-up and then operate express service to downtown St. Paul. During peak periods, three express routes operate from Maplewood Mall Transit Center and one limited stop route from Sunray is added.

## Off-Street Facilities

Regionally, major off-street transit facilities consist of transit centers and park-and-ride facilities.

### Transit Centers

There is one major transit center in the Study Area at the Sun Ray Shopping Center. However, Maplewood Mall is an important destination and transfer point just to the northeast of the Study Area.

- ***Sun Ray Transit Center*** – Located on the west side of the shopping center, just north of Hudson Road on Pederson Avenue. It is served by routes 63, 70, 74, 80, 219 and 350.
- ***Maplewood Mall Transit Center*** – Located on the southwest corner of the shopping center, near Beam Avenue and Southlawn Drive. It is served by routes 64, 80, 219, 223, 265, 270 and 272.

### Park & Ride Lots

The Maplewood Park & Ride is located just to the northeast of the Study Area; however, there are no park-and-ride lots located within the Study Area. Park-and-ride activity is not encouraged in this area given the current and expected future transit service, density and land uses. Metro Transit has historically not planned park-and-ride lots inside Minneapolis and St. Paul city limits.

## On-Street Facilities

There are 598 bus stops in the study area. Major on-street transit facilities consist of large waiting shelters and dedicated rights-of-way for transit vehicles.

### Transit Waiting Shelters

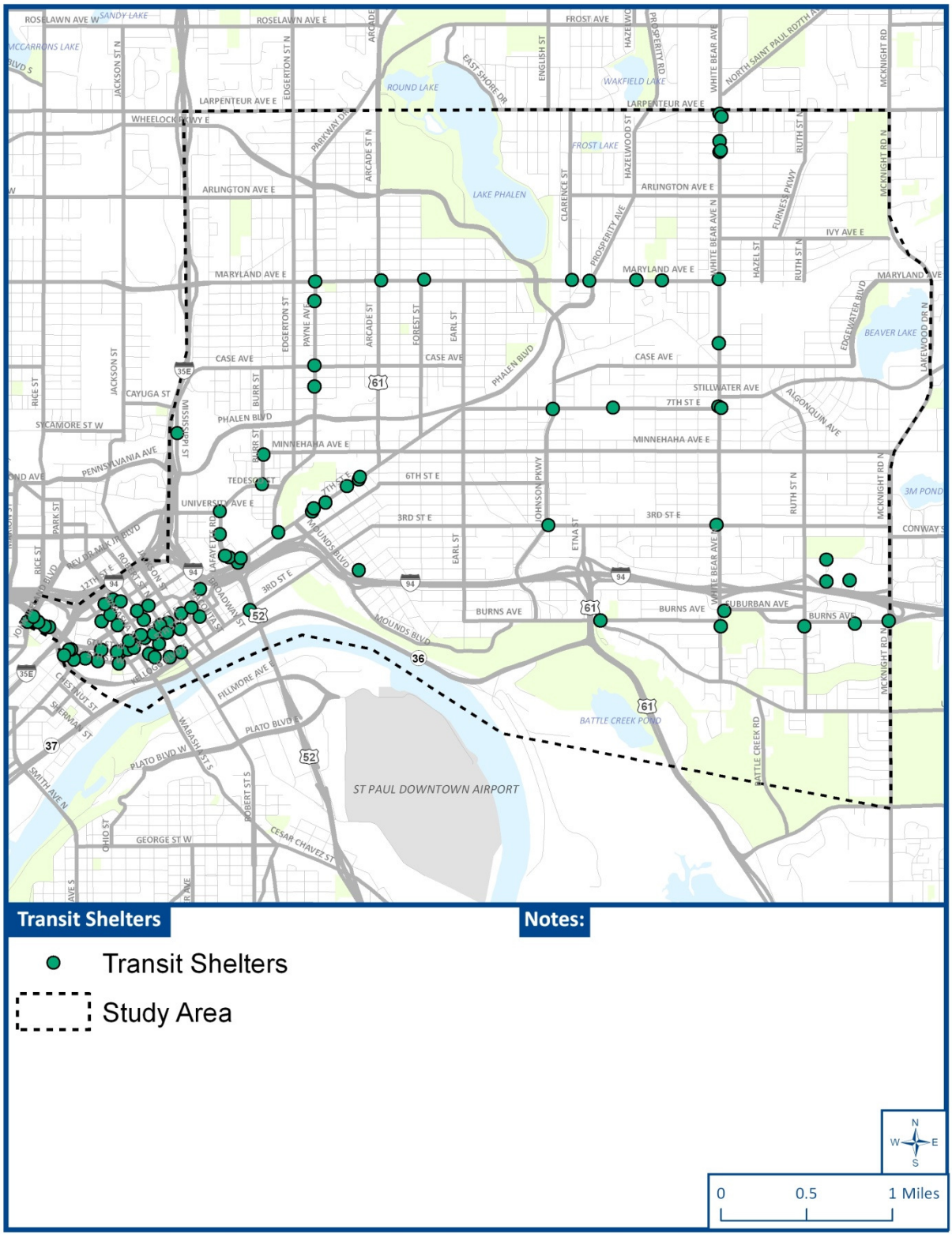
There are 93 transit waiting shelters in the Study Area, which include passenger amenities and information. In St. Paul, a transit shelter is warranted if there are a minimum of 40 passenger boardings

per weekday. Major transit facilities are in place in downtown St. Paul. A map of the transit waiting shelters within the Study Area can be found in **Figure 3**.

### Dedicated Transit Rights of Way

There are some significant dedicated transit rights-of-way in the Study Area. Bus lanes are in place on Minnesota Street, 5th Street and 6th Street in downtown St. Paul. There are several ramp meter bypasses on I-35E, but the Broadway Street bypass is the only one within the Study Area. I-35E also has bus-only shoulder lanes, providing a transit advantage in the Study Area between the Cuyuga Bridge and Highway 36.

*Figure 3 - Map of the Transit Shelters in the East Side of St. Paul*



## Regional Transit Standards

While several factors influence the propensity to use transit, the primary predictors of transit productivity are density of development at the origin and destination of trips. Transit markets in the seven-county Twin Cities region are identified using the Transit Market Index, which is calculated using three primary factors: 1) population density, 2) employment density, and 3) automobile availability. The Transit Market Index measures the potential market for transit services in a given area. Different types and levels of transit services are appropriate for each transit market area.

The region has five distinct Transit Market Areas, shown in **Figure 4**, that are determined based on the Transit Market Index for a given location and nearby areas. Transit Market Area 1 has the highest density of population, employment and people without access to automobiles. Because of this, Market Area 1 is able to support intensive transit service.

Transit Market Area 2 has high- to moderately-high population and employment densities yielding a market area that is conducive to fixed route transit operations, but not as intensive as in Market Area 1.

Appendix G of the *2030 Transportation Policy Plan* outlines service design standards for routes based on the market area they service. These standards can be found in **Figure 5** and **Figure 6**. Transit Market Area 1 standards for service include:

- 15-minute peak and 30-minute off-peak minimum frequency on radial routes to downtown
- 30-minute peak and off-peak minimum frequency on crosstown routes
- Maximum desired distance between radial routes is one-half mile
- Maximum desired distance between crosstown routes is 1 mile

Most of the rest of the Study Area lies in Transit Market Area 2 and the guidelines for service are as follows:

- 30-minute peak and 60-minute off-peak minimum frequency on radial and crosstown routes
- Maximum desired distance between radial routes is 1 mile
- Maximum desired distance between crosstown routes is 2 miles

Much of the Study Area, including the State Capitol and downtown St. Paul, lies in Transit Market Area 1, and opportunities exist to increase employment and population density. The City of St. Paul is pursuing policies that are supportive of intensification of the corridor's population density, especially along East 7th Street and Phalen Boulevard between I-35E and White Bear Avenue.

*Figure 4-Map of East Side St. Paul Transit Market Areas*

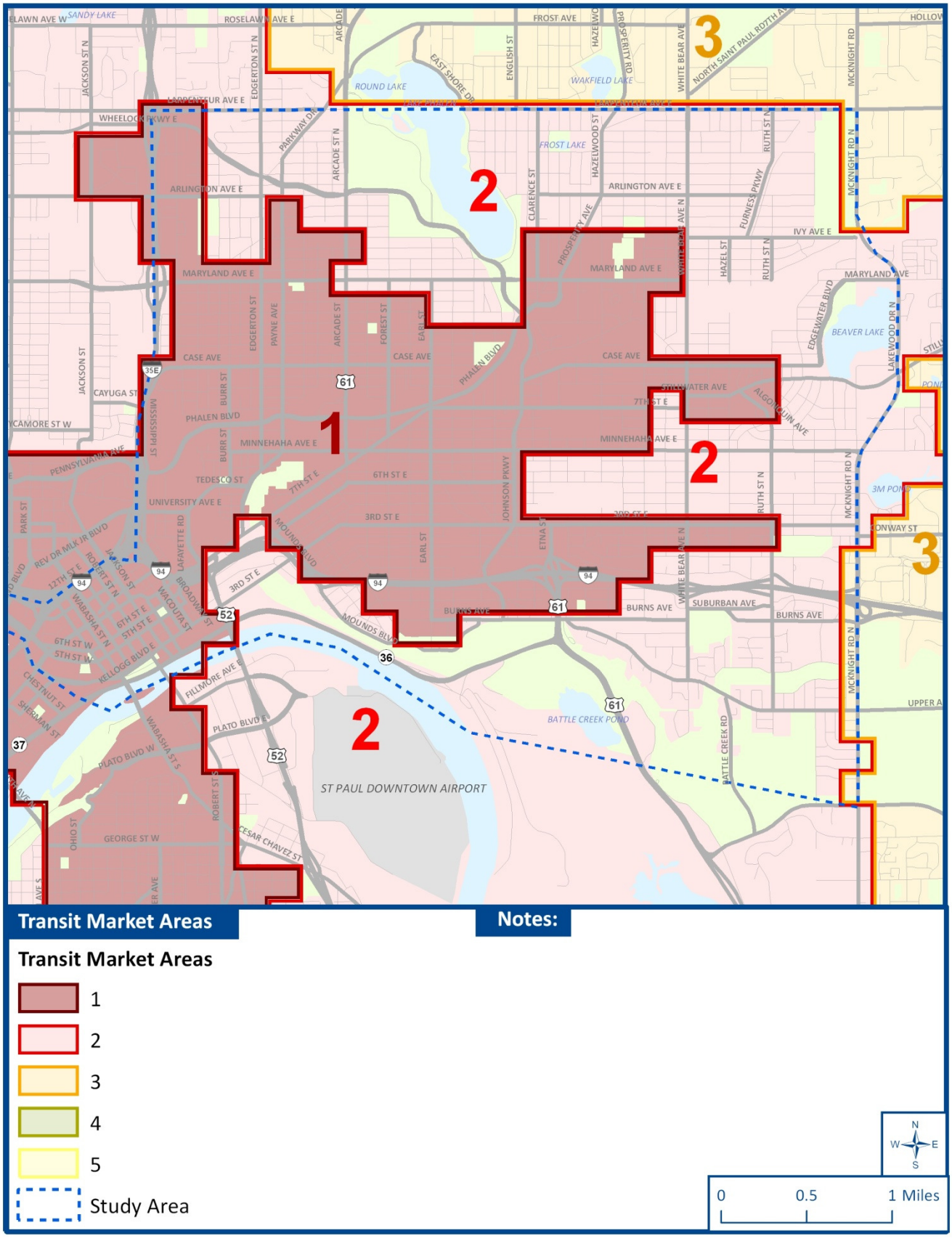


*Figure 5 – Metropolitan Council Day and Time Service Standards*

| Days and Times of Service | | | | | |
|---|---|---|---|---|---|
| Route Type | Area I | Area II | Area III | Area IV | Area V |
| Express | PMENW | PMENW | PME | P | n/a |
| Urban Radial | PMENOW | PMENOW | PMENW | n/a | n/a |
| Urban Crosstown | PMENW | PMENW | n/a | n/a | n/a |
| Suburban Local/Circulator | PMENW | PMENW | PMENW | n/a | n/a |
| General Public Dial-a-Ride | n/a | n/a | Up to 18 hours | Up to 14 hours | Up to 14 hours |
| A trip's service period is determined by the time the route crosses its maximum load point. These standards represent the upper limit of service. For example, owl service is allowable but not required in Area I for an urban local route. | | | | | |
| **P**eak: 6:00 a.m.-9:00 a.m. and 3:00 p.m.-6:30 p.m.; **M**idday: 9:00 a.m.-3:00 p.m.; **E**vening: 6:30 p.m.-9:00 p.m.; **N**ight/Early AM: 9:00 p.m.-1:30 a.m. and 5:00 a.m.-6:00 a.m. and **O**wl: 1:30 a.m.-5:00 a.m. **W**eekend is Saturday, Sunday/Holiday. Times do not necessarily correspond with fare structure times. | | | | | |

*Figure 6 – Metropolitan Council Frequency Standards*

| Minimum Frequency | | | | | |
|---|---|---|---|---|---|
| Route Type | Area I | Area II | Area III | Area IV | Area V |
| Express | 30" Peak | 30" Peak | 3 Trips | 3 Trips | N/A |
| Urban Radial | 15" Peak/ 30" Offpeak | 30" Peak/ 60" Offpeak | 60" Peak/ 60" Offpeak | N/A | N/A |
| Urban Crosstown | 30" Peak/ 30" Offpeak | 30" Peak/ 60" Offpeak | N/A | N/A | N/A |
| Suburban Local/Circulator | N/A | 30" Peak/ 60" Offpeak | 60" Peak/ 90" Offpeak | N/A | N/A |
| *Additional service may be added as demand warrants. Applies primarily to peak travel direction.* | | | | | |

## Study Area Route Coverage and Level of Service

Transit route coverage and hours of service in the Study Area on weekdays generally meet service standards defined in the *2030 Transportation Policy Plan*, with a few exceptions.

In the Study Area, coverage and frequency varies by time of day and day of the week. During the weekday peak periods and midday times, coverage is generally good. During night times, however, some routes operate only limited hours, with several significant corridors or streets that do not have service at certain off-peak times. Some areas have relatively low populations or population densities that do not

generate enough ridership to support more service. Other areas in this category do have good densities, but lack service on some days of the week and times of the day.

These areas are discussed and illustrated below. The service frequencies are averages and may apply only to the main portion of the route.

• **Weekday Peak Periods** (**Figures 7** and **9**) – Coverage is good in the Study Area during peak periods.

Route 61 provides local service on East 7th, Arcade, Larpenteur and East Hennepin serving downtown St. Paul, Industrial Boulevard and downtown Minneapolis. Service frequencies are every 20 to 30 minutes.

Route 63 provides local service on Grand, East 3rd and McKnight serving University of St. Thomas, Macalester College, Smith Avenue area medical complex, downtown St. Paul and Sun Ray Transit Center. Service frequencies are every 20 minutes.

Route 64 provides local service on Payne, Maryland, White Bear and 7th Street, serving downtown St. Paul, Hillcrest Shopping Center, North St. Paul and the Maplewood Mall Transit Center. Service frequencies range from 7 to 15 minutes.

Route 70 provides local service on St. Clair, West 7th, Pacific, Burns, Suburban and Ruth, serving Highland Village, downtown St. Paul and Sun Ray Transit Center. Service frequencies are every 30 minutes.

Route 71 provides local service on Concord, Arkwright, Westminster/McMenemy, Edgerton and Little Canada Road, serving Inver Grove Heights, South St. Paul, downtown St. Paul, Maplewood and Little Canada Transit Center. Service frequencies are every 15 to every 30 minutes.

Route 74 provides local service on 46th Street, Ford Parkway, Randolph, West 7th, East 7th and Minnehaha Avenue, serving 46th Street Station, downtown St. Paul and Sun Ray Transit Center. Service frequencies are every 15 minutes.

Route 80 provides local crosstown service on White Bear Avenue, serving Sun Ray Transit Center, Hillcrest Shopping Center and Maplewood Mall Transit Center. Service frequencies are every 30 minutes.

Route 219 provides local crosstown service on Century Avenue, serving Sun Ray Transit Center, Landfall, Oakdale, North St. Paul, Century College, White Bear Lake and Maplewood Mall Transit Center. Service frequencies are every 30 minutes.

Route 294 provides express service between downtown St. Paul to Maplewood, Oakdale, Lake Elmo, Stillwater, Oak Park Heights via I-94, McKnight, Conway, Century, Hadley and Hwy. 5. Service frequencies are every 20 to 30 minutes.

Route 350 provides limited stop service between downtown St. Paul to Sun Ray Shopping Center and Maplewood via I-94, Ruth, Burns, McKnight, Highwood and Century. Service frequencies are every 20 to 40 minutes.

• **Weekday Midday** (**Figure 8**) – Coverage is good - essentially the same as in the peak periods in the Study Area. Local route frequencies are generally every 20 to 30 minutes. Route 64 is better with 10 to 15-minute service and Route 80 is less with 60-minute service.

• **Weekday Evening** (**Figure 10**) – Coverage in the Study Area is less than during the midday. Most of the urban local routes in the study area operate evenings. However, there are some routes with low frequency and no evening service, even in some areas that are part of Transit Market Area 1:
- Route 61 operates hourly after 7:30 p.m.
- Route 70 operates hourly after 7:00 p.m.
- Route 71 operates hourly after 6:00 p.m.
- Route 80 does not operate after 7:30 p.m.

• **Owl** – Daily service does not include night "owl" service (1:00 a.m.-5:00 a.m.).

• **Saturday Midday** (**Figure 11**) – Coverage in the Study Area is less on Saturdays than on weekdays. All urban routes operate Saturdays, but limited stop Route 350 and express Route 294 do not. Frequencies vary more widely on Saturdays. Routes 61 and 70 both operate at low frequencies and are part of Transit Market Area 1. These routes operate hourly between 6:30 a.m. and 9:00 p.m.

• **Saturday Evening** (**Figure 12**) – Coverage in the Study Area is significantly less on Saturday evenings, which results in service gaps in Transit Market Area 1 on routes 61 and 70. While most other routes have 30-minute service, these routes have no service after 9:00 p.m.

• **Sunday Midday** (**Figure 13**) – Coverage is the same as on Saturdays. Most routes, even in sections of Transit Market Area 1, have lower frequency on Sunday than on Saturday. Some routes have frequencies that are below standards for Transit Market Area 1. Route 61 has no service on Sundays, and routes 70 and 71 operate hourly. Route 64, however, has 20- to 30-minute service on Sundays and offers attractive service levels in the Study Area.

• **Sunday Evenings** (**Figure 14**) – Coverage is less on Sunday evenings than on Saturday evenings, which results in longer gaps in service and major discrepancies from the level of service expected in Market Area 1.
- Route 64 has 60-minute service after 11:00 p.m.
- Route 74 has 60-minute service after 6:30 p.m.

- No other routes operate on Sunday evenings

*Figure 7-Map of Transit Service Frequencies Weekday AM Peak*

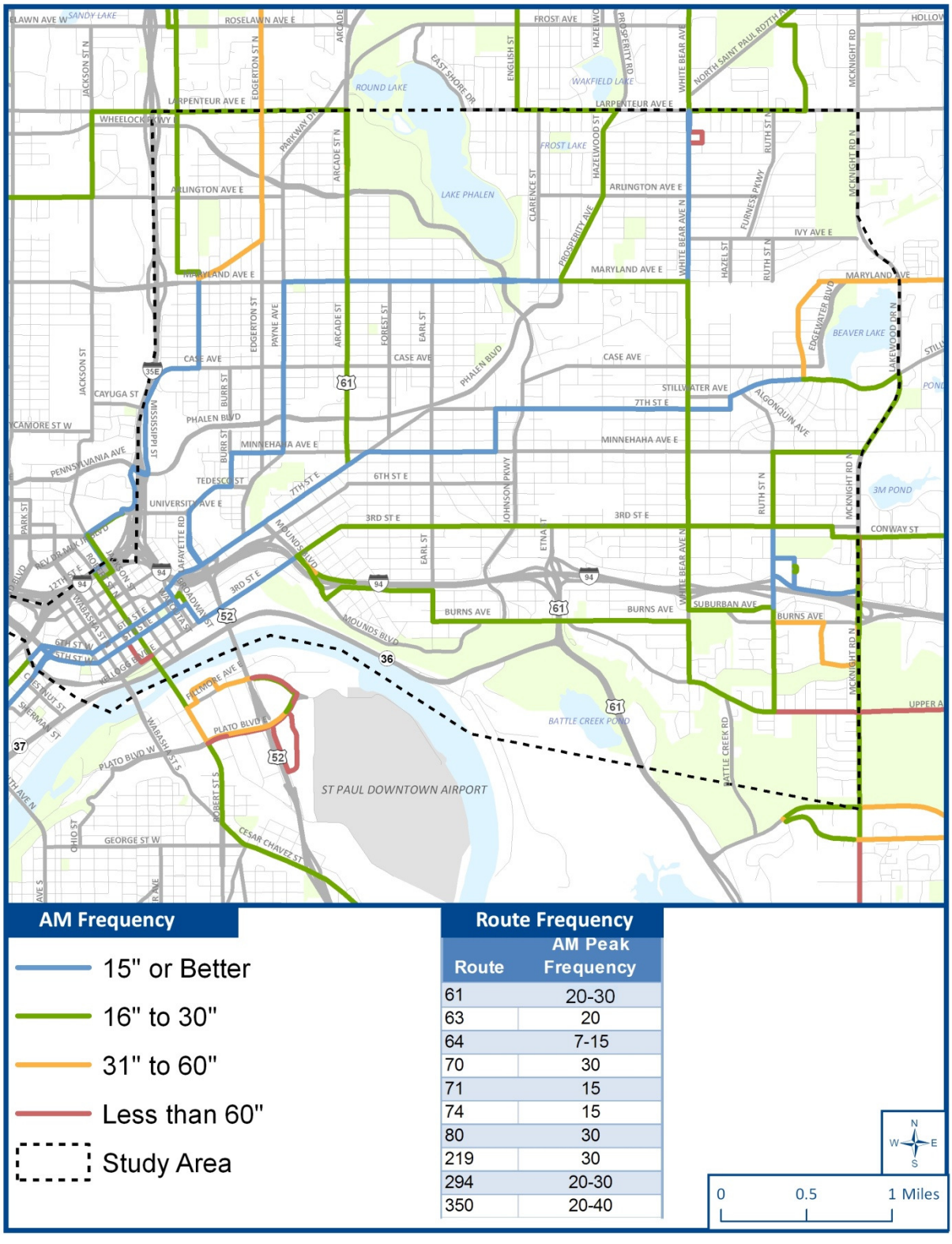


*Figure 8-Map of Transit Service Frequencies Weekday Midday*

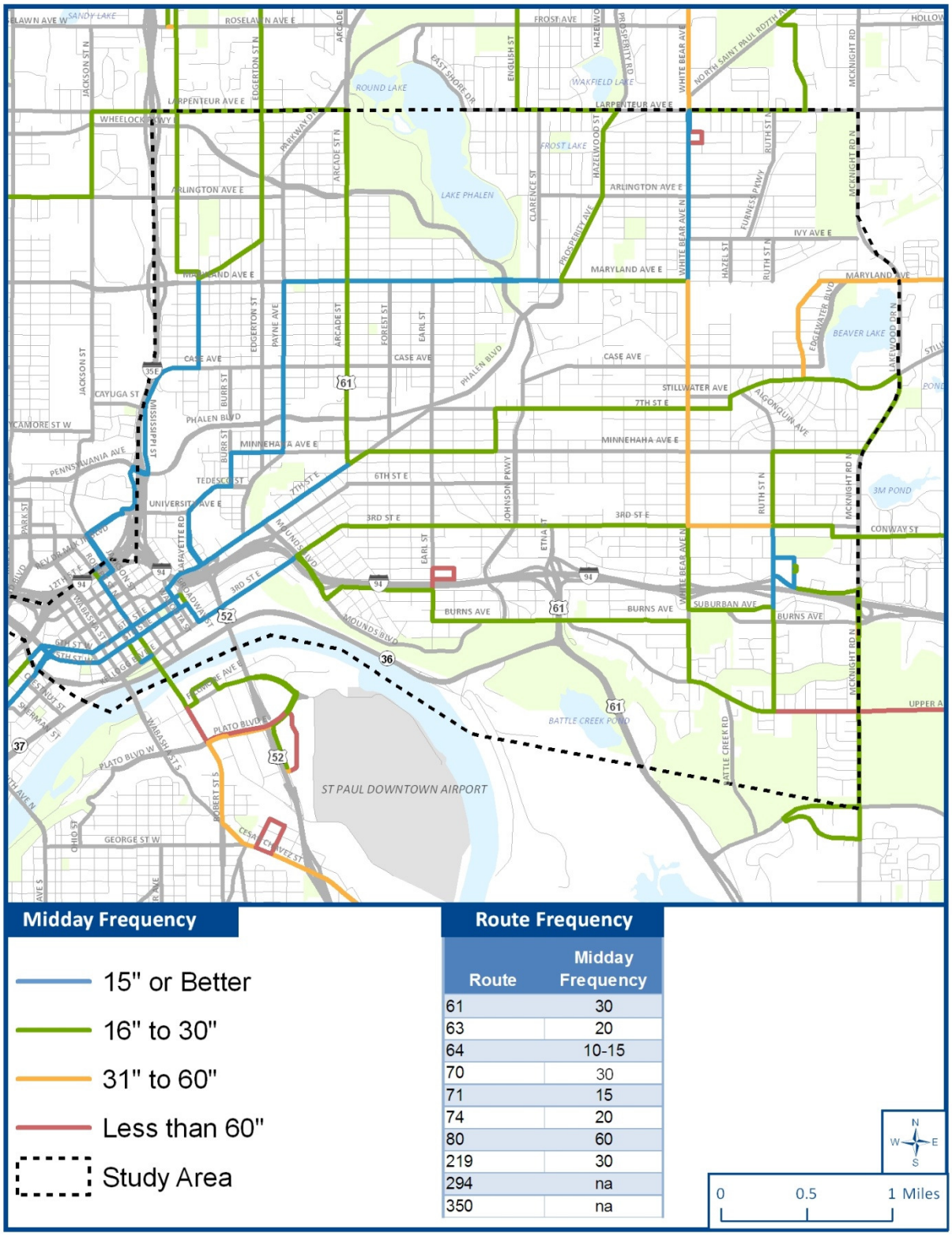


*Figure 9-Map of Transit Service Frequencies PM Peak*

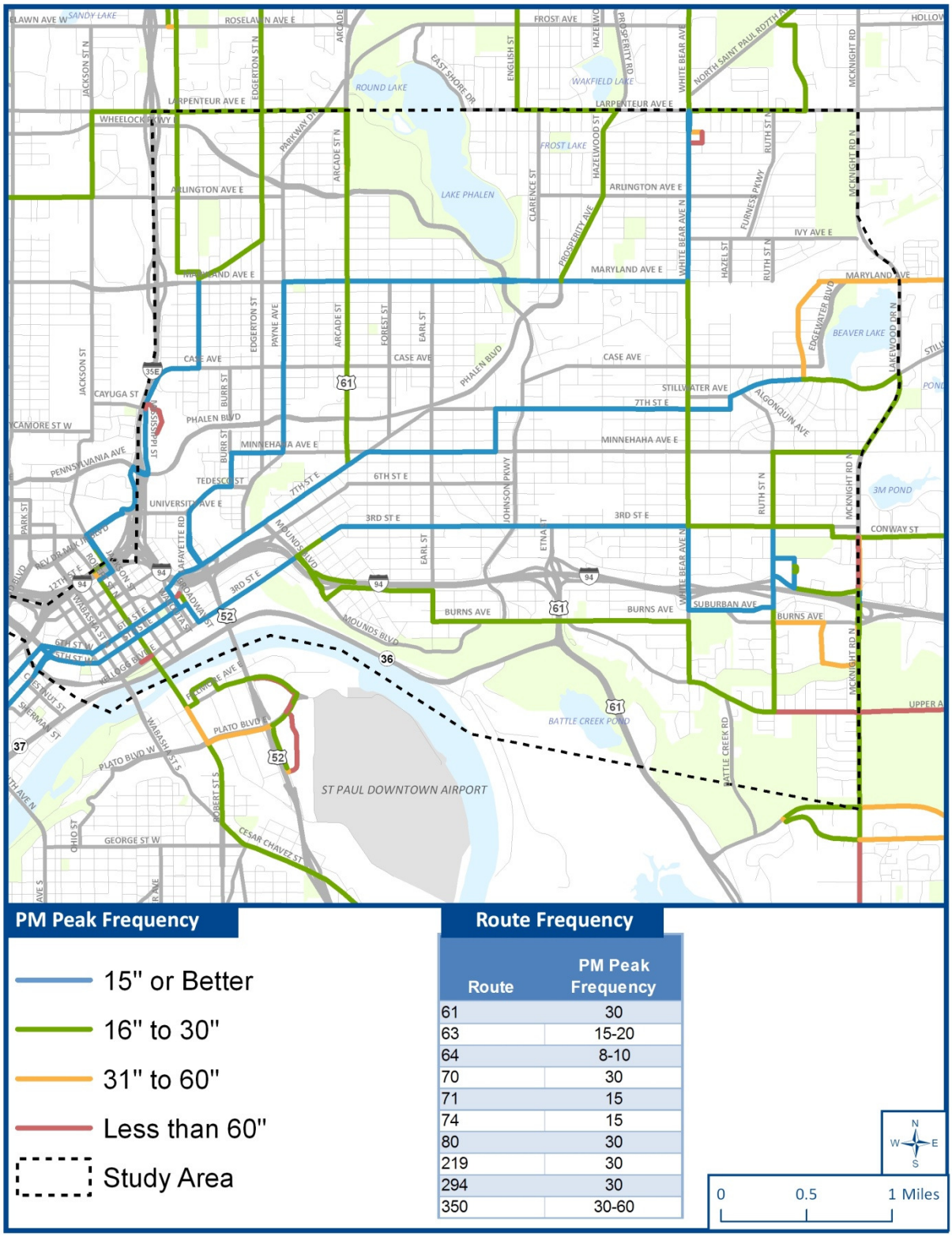


*Figure 10-Map of Transit Service Frequencies Weekday Evening*

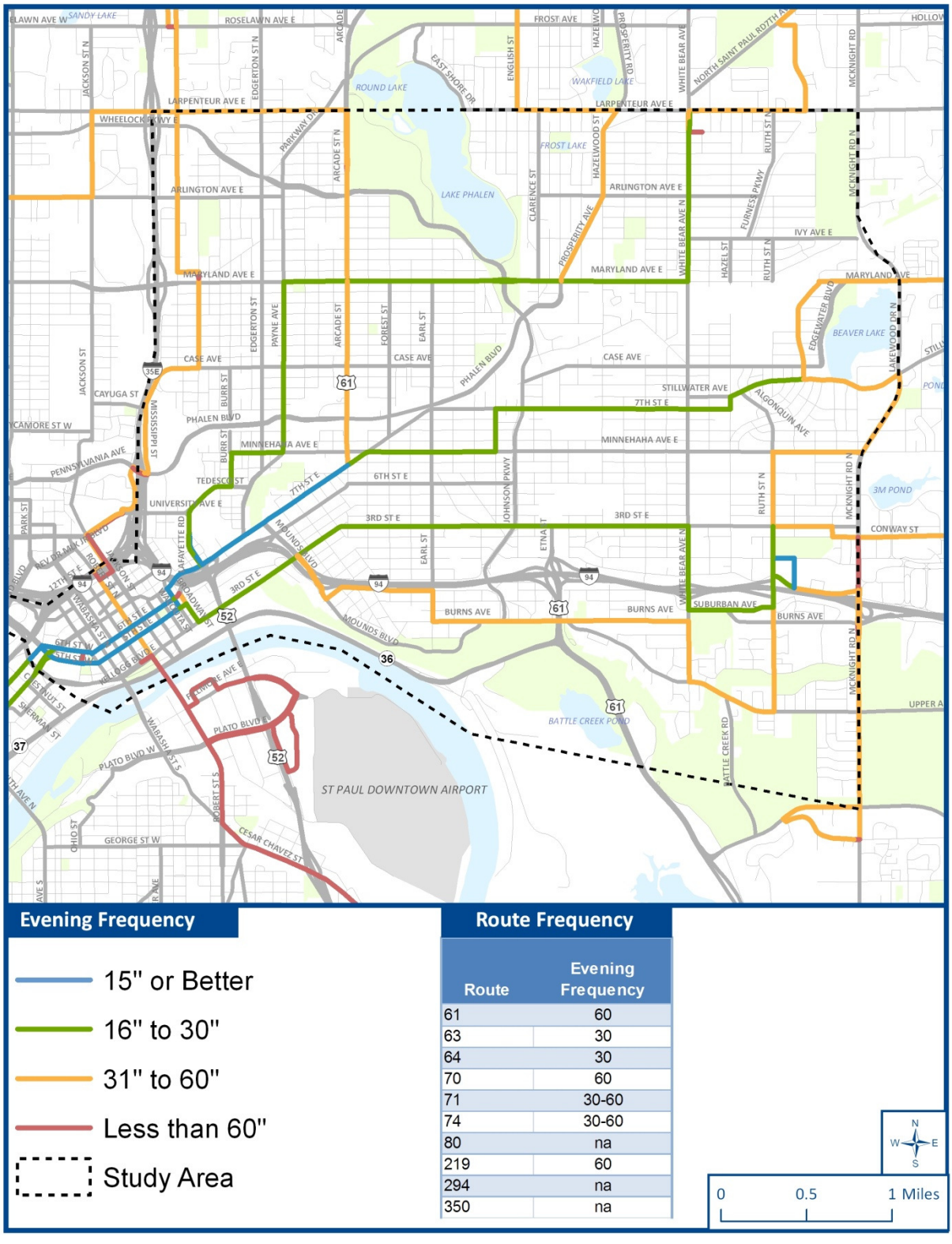


*Figure 11-Map of Transit Service Frequencies Saturday Midday*

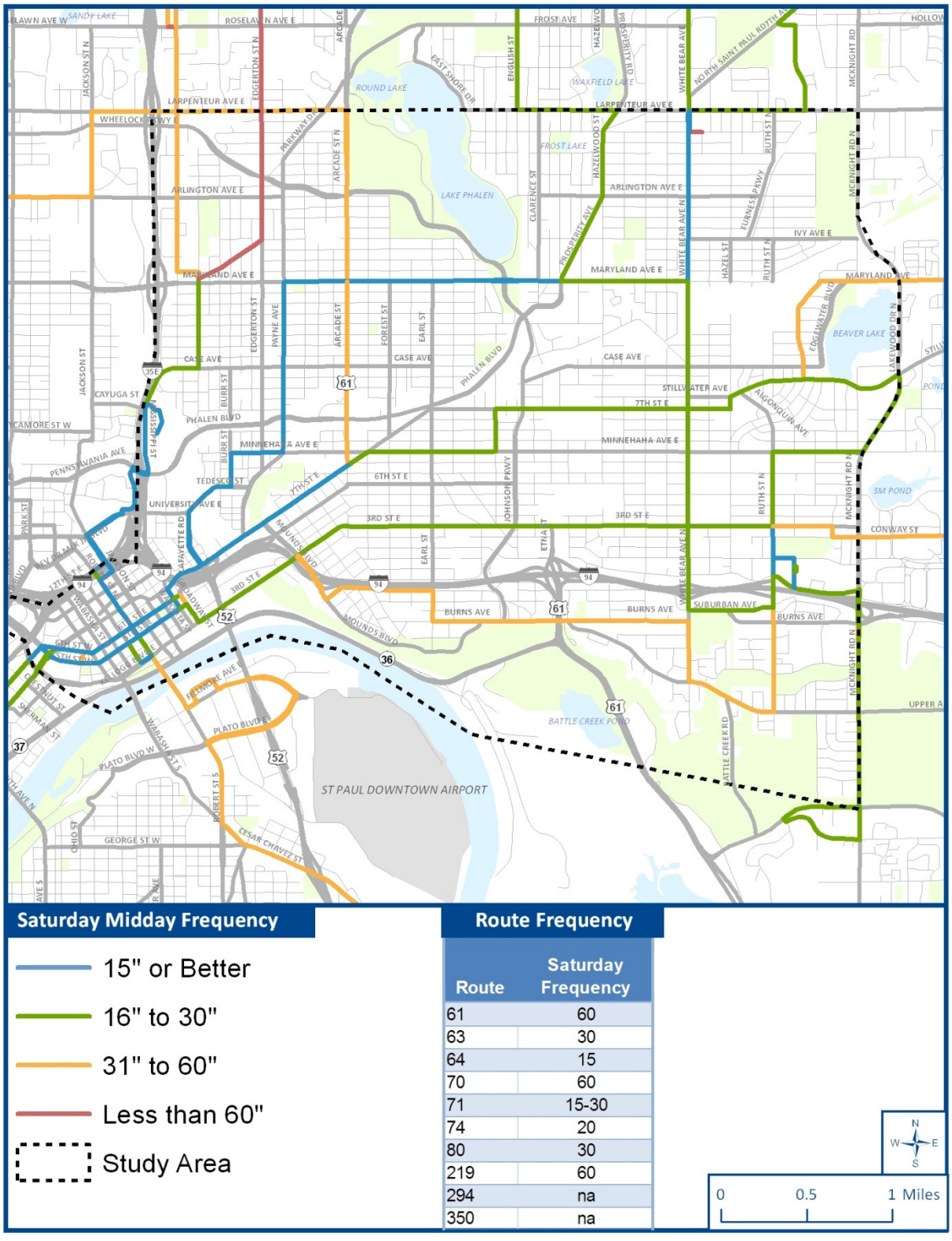


*Figure 12-Map of Transit Service Frequencies Saturday Evening*

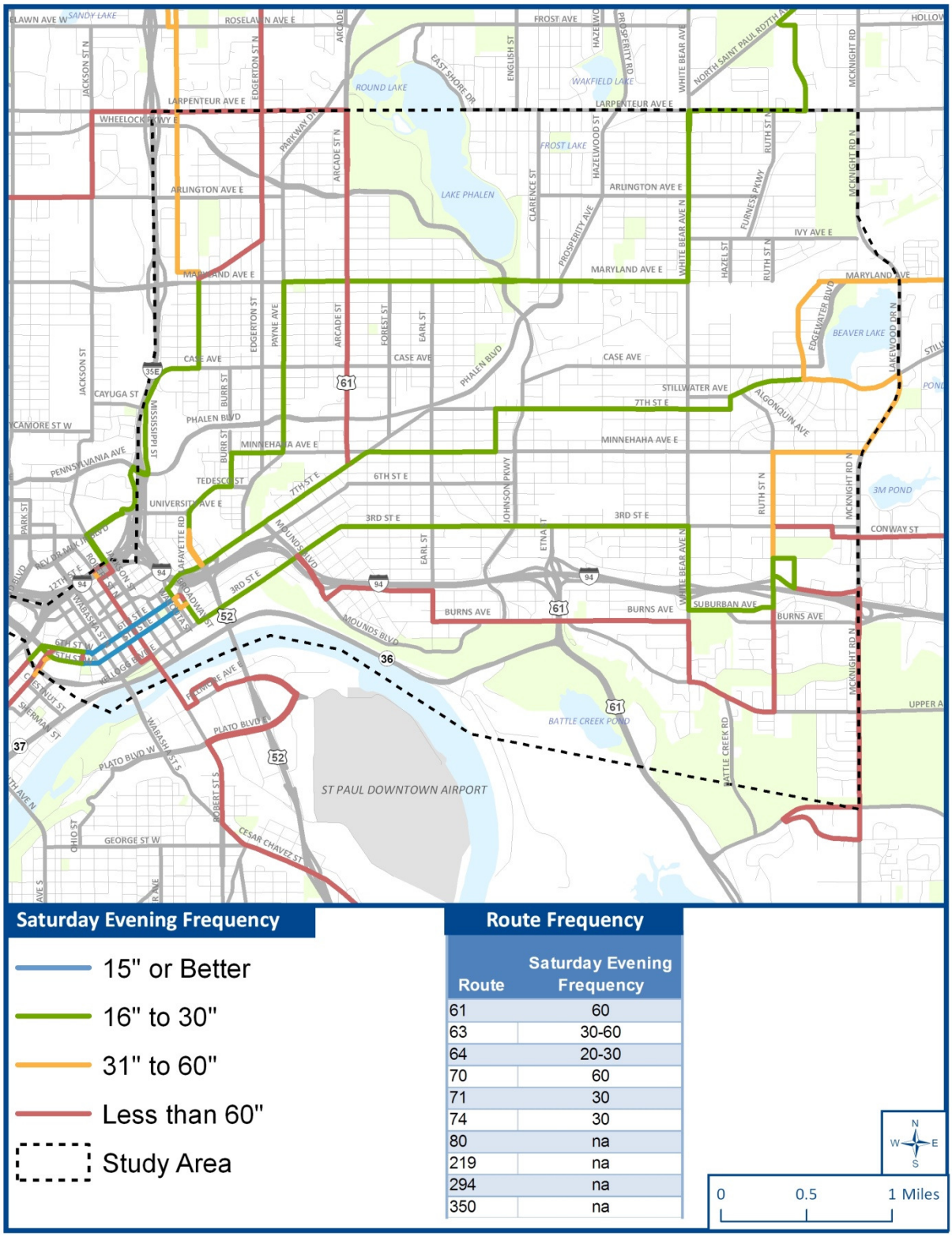


*Figure 13-Map of Transit Service Frequencies Sunday Midday*

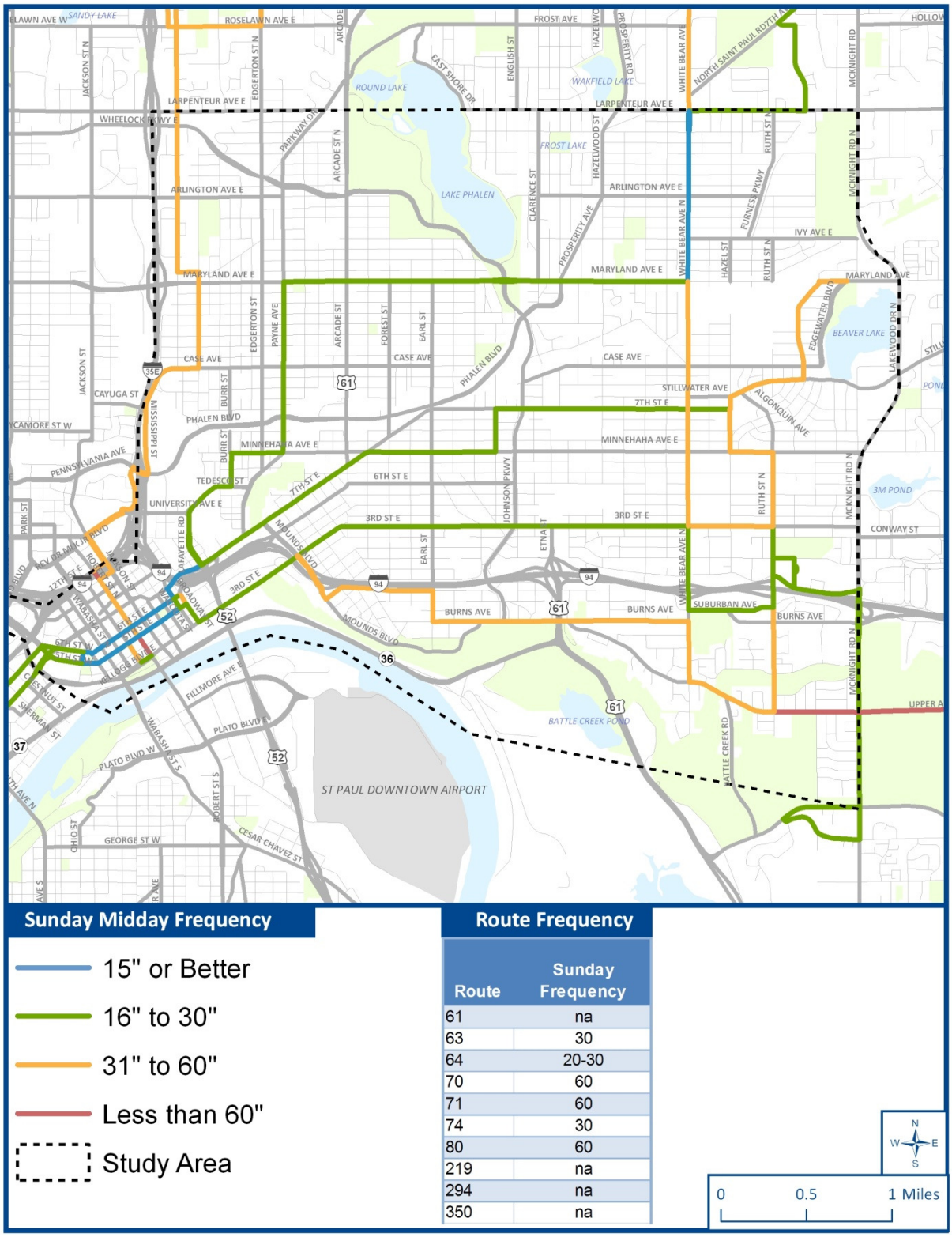
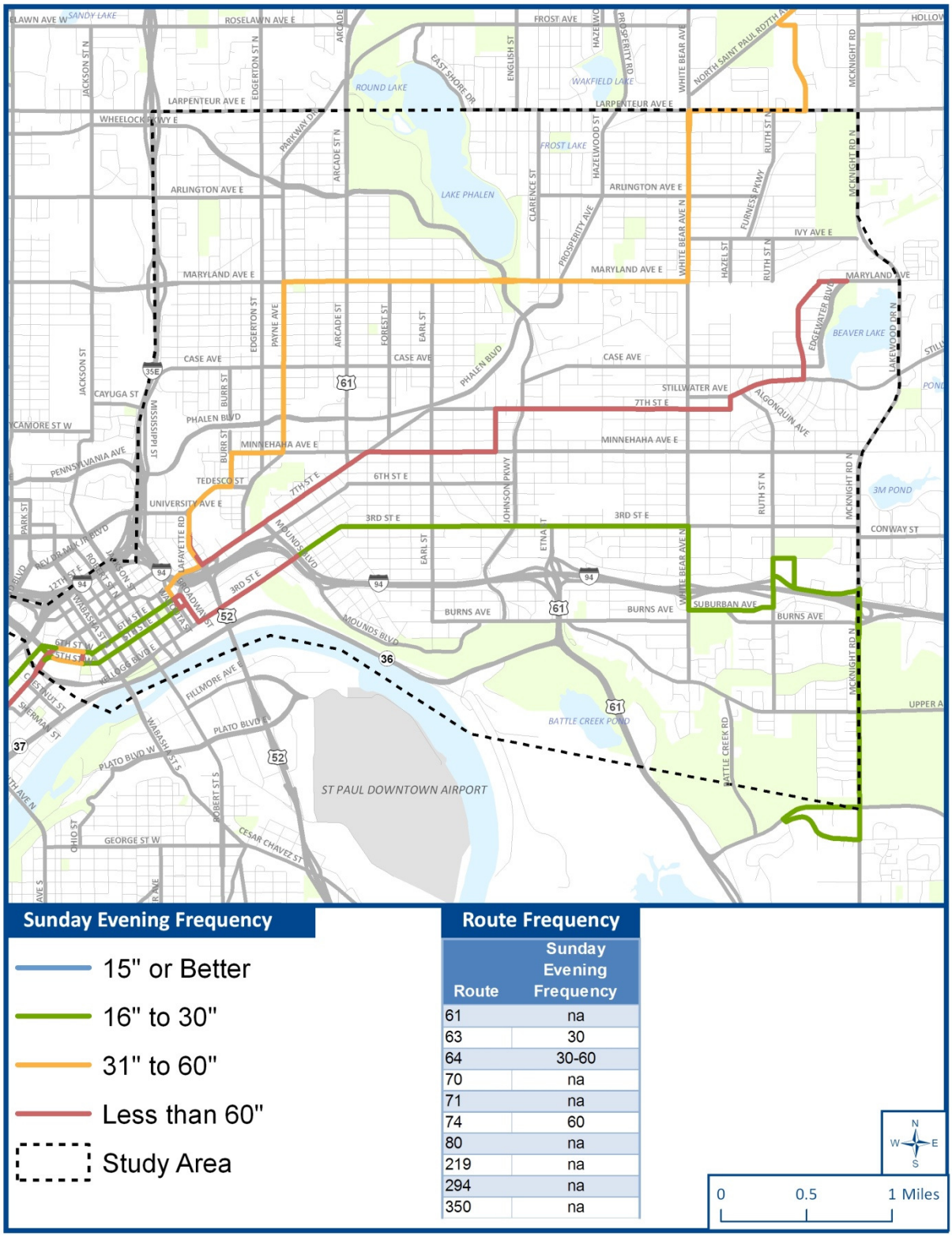


*Figure 14-Map of Transit Service Frequencies Sunday Evening*



## Service Frequencies

The trunk service frequencies for Study Area routes are summarized in the following table.

***Figure 15-East Side St. Paul Bus Frequencies***

| | Weekday | | | | Saturday | | Sunday | |
|---|---|---|---|---|---|---|---|---|
| Route | AM Peak | Midday | PM Peak | Evening | Midday | Evening | Midday | Evening |
| 61 | 10-20 | 30 | 30 | 60 | 60 | 60 | --- | --- |
| 63 | 20 | 20 | 15-20 | 30 | 30 | 30 | 30 | 30 |
| 64 | 7-15 | 10-15 | 8-10 | 30 | 15 | 20-30 | 20-30 | 30-60 |
| 70 | 30 | 30 | 30 | 60 | 60 | 60 | 60 | --- |
| 71 | 15 | 15 | 15 | 30-60 | 15-30 | 30 | 60 | --- |
| 74 | 15 | 20 | 15 | 30-60 | 20 | 30 | 30 | 60 |
| 80 | 30 | 30 | 30 | --- | 30 | --- | 60 | --- |
| 219 | 30 | 30 | 30 | 60 | 60 | --- | --- | --- |
| 294 | 20-30 | --- | 30 | --- | --- | --- | --- | --- |
| 350 | 20-40 | --- | 30-60 | --- | --- | --- | --- | --- |

## Bus Stop Spacing

The bus stop spacing standard for local routes is six to eight stops per mile.

• ***North-South Routes (e.g. routes 61, 71, 80, 219)*** – The north-south routes tend to stop at every other cross street. These blocks, however, are shorter at 16 blocks to the mile. Therefore, stop spacing on many of these routes or route segments are in compliance with stop-spacing standards.

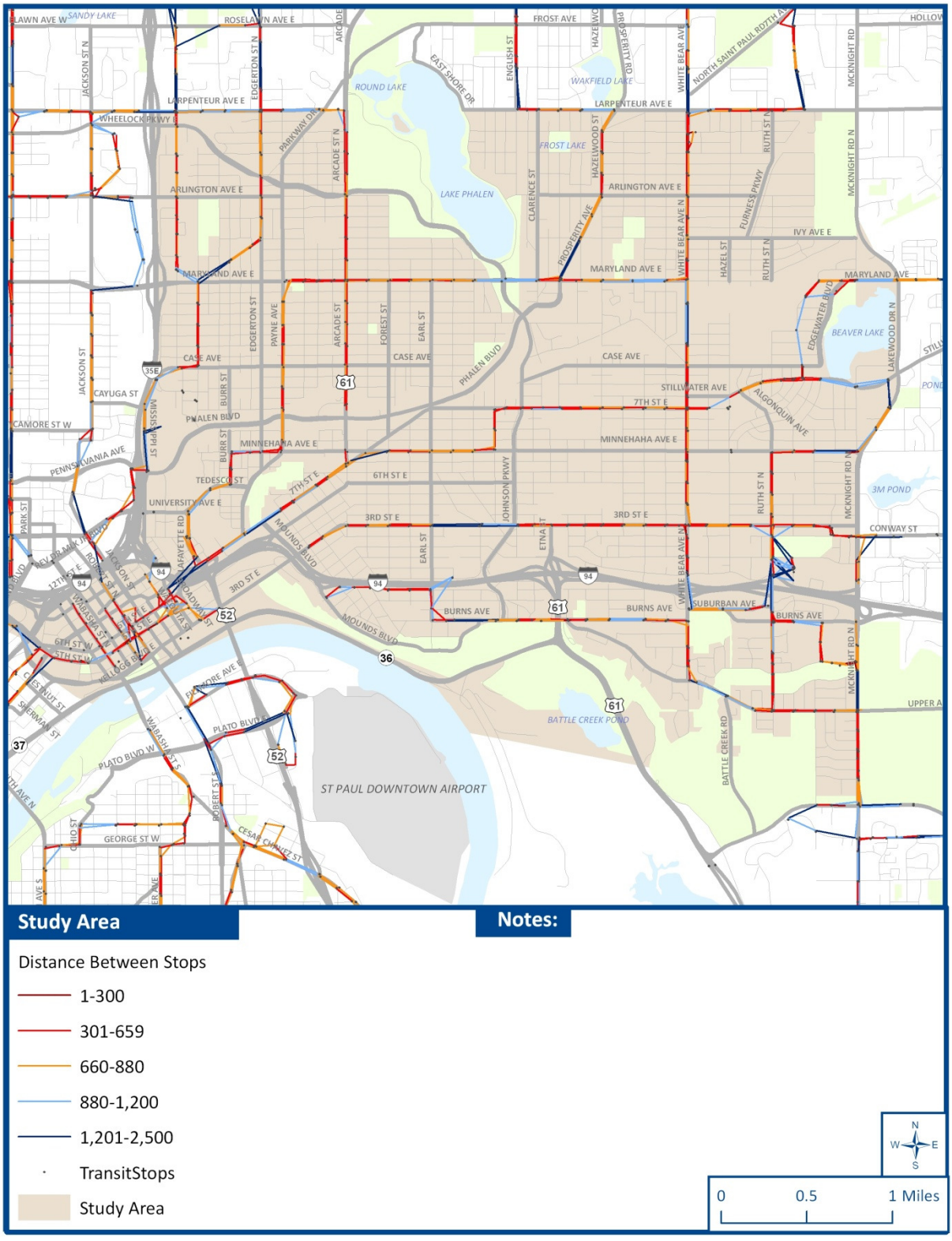
• ***East-West Routes (e.g. routes 63, 64, 70, 74)*** – The east-west routes usually stop at every cross street. In St. Paul, these are relatively long blocks at 8 blocks to the mile. Therefore, most of the east-west portions of these routes or route segments are in compliance with bus stop-spacing standards.

• ***Limited Stop and Express Routes (e.g. routes 294, 350)***

The bus stop-spacing standard for limited stop routes is one stop every half mile or every mile, and the stop-spacing standards for express routes is no stops for at least four miles.

Please see Figure **16** for the map showing bus stops and spacing in the Study Area.

*Figure 16-Map of Transit Stop Spacing*



## Bus Service Speeds and Travel Times

Bus service speeds and travel times are affected by a number of factors. Slow traffic, frequent red lights and close bus stop spacing may result in lower bus speeds. Bus-only lanes, transit advantages (such as bus-only shoulders, queue jumps, ramp-meter bypasses and traffic signal priority), fewer bus stops and free flow traffic result in higher average speeds.

Local, limited-stop and express buses operate at significantly different speeds and provide different travel times. **Figure 17** and **Figure17a** present the travel sheds from two significant intersections within the Study Area: East 7th Street & White Bear Avenue and Payne Avenue & Maryland Avenue. The travel shed maps depict how far one could travel from these intersections using local, limited-stop and express buses in 30 minutes and 60 minutes. These travel times are used since transit is most competitive for local trips lasting less than 30 minutes, and 60 minutes is generally the upper limit of how long people are willing to sit on a bus. Two routes that significantly affect the travel shed maps are Route 94 express service to downtown Minneapolis, which extends the 60-minute travel shed to the west, and Route 54 limited-stop service on West 7th Street, which extends the 60-minute travel shed to the southwest.

*Figure 17-Map of Travel Shed from East 7th and White Bear Avenue*

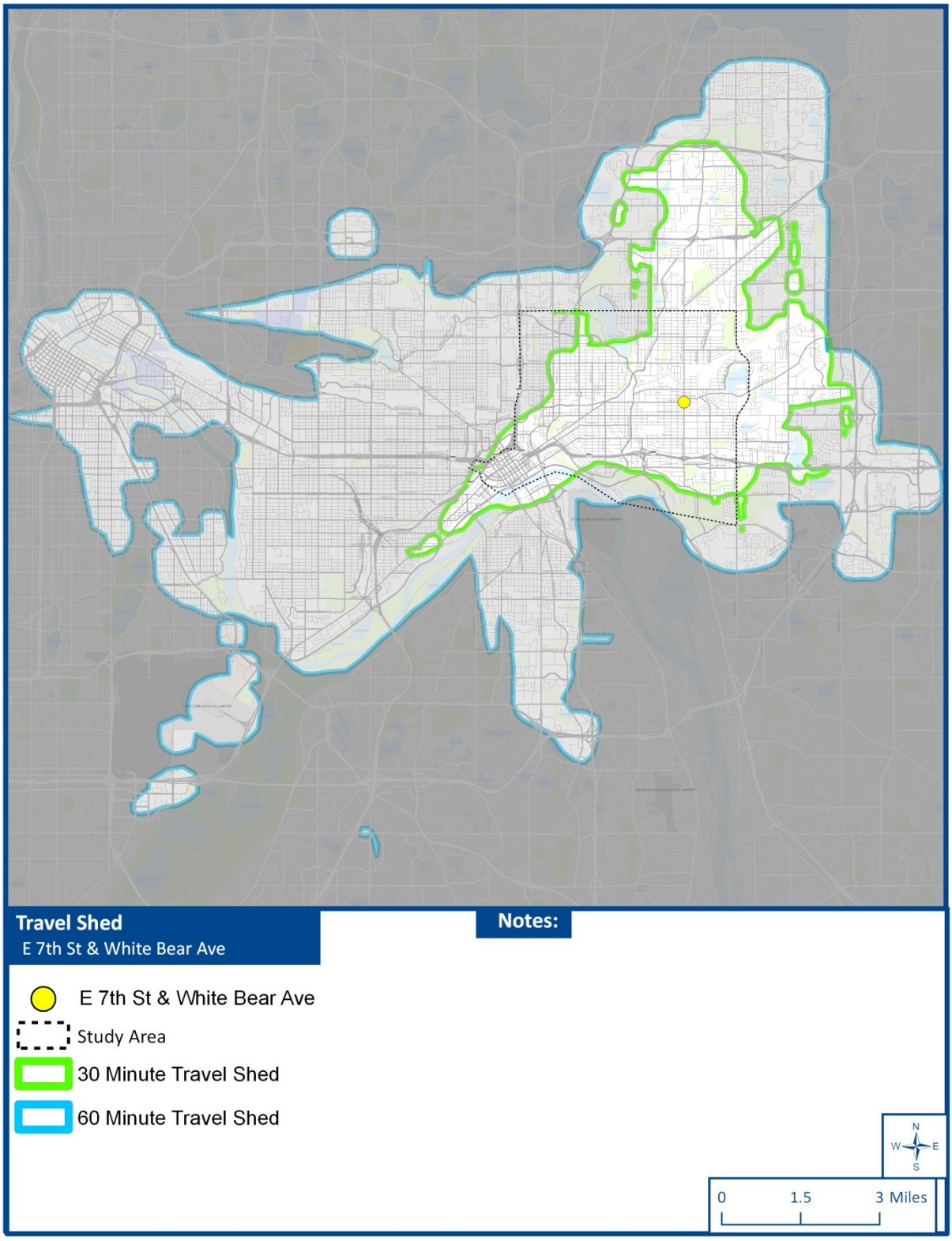


*Figure 17a-Map of Travel Shed from Payne Avenue and Maryland Avenue*