

1 **SECTION V - CIRCULATION PLAN ELEMENT**

2

3 **INTRODUCTION**

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5 As a community that is essentially fully-developed, Livingston’s transportation improvement

6 opportunities are limited. The primary mode of transportation within the Township, and for those

7 traveling to or from the Township, is the private motor vehicle. There is no rail service, and there

8 is no land available for a rail right-of-way that would provide direct or connecting commuter

9 service. Limited bus services provide east-west inter-community carriage within New Jersey and

10 on commuter routes to and from New York City.

11

12 The focus of this Circulation Element is upon in-town vehicle and pedestrian safety, parking, and

13 bicycling.

14

15 **ROADWAY SYSTEM**

16

17 Roadways are classified into a hierarchy based upon their intended and actual function.

18 Table V-1 defines the different roadway classifications, and identifies roadways, within each

19 classification other than “Local”, that serve the Township.

20

21 Table V-1: Roadway Classification

22

23 “I” stands for Interstate; “Route” for a State Highway; and, “CR” for an Essex County Road.

24

Classification	Definition	Roadways
Freeway	Limited access; accommodates inter-state travel.	I-280
Major Arterial	Serves inter-regional and inter-community travel	Mt. Pleasant Avenue (Route 10) Livingston Avenue (CR 527; CR 649) Northfield Road (CR 508) South Orange Avenue (CR 510) JFK Parkway (CR 649) Eisenhower Parkway (CR 609)
Minor Arterial	Also serves inter-community travel, but at a lower level of mobility than principal arterials	Walnut Street (CR 607) Passaic Avenue (CR 607) Shrewsbury Drive (CR 635) Laurel Avenue (CR 634)
Collector	Collects traffic from local roadways, and distributes to arterial roadways	Cedar Street (CR 527) Hobart Gap Road (CR 608) Beaufort Avenue (CR 661)
Local	Provides direct access to all land uses	All other roadways

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26

1 **East-West Traffic**

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3 Interstate 280, the roadway in western Essex County with the highest classification, runs east-
4 west along the portion of the Township’s northern border that lies between Livingston Avenue
5 and Laurel Avenue. On and off ramps are provided at both of those avenues; although most of
6 the interchange ramps between Livingston Avenue and I-280 lie in Roseland Borough. After
7 leaving the Township, Eisenhower Parkway also connects to I-280 at an interchange with ramps
8 in Roseland Borough.
9

10 A number of major regional roadways cross the Township. State Route 10 (Mount Pleasant
11 Avenue) is a key east-west route for commuters traveling between the New York City
12 metropolitan area and western Essex County, Morris County and beyond. South Orange Avenue
13 (CR 510) and Northfield Road (CR 508) are east-west roadways that extend to the east through
14 southern Essex County. South Orange Avenue continues westward into Morris County.
15 Northfield Road’s western terminus is at the Route 10 Livingston Circle.
16

17 **North-South Traffic**

18
19 Livingston Avenue (CR 527 and 649), continues as John F. Kennedy Parkway for its portion that
20 is south of South Orange Avenue and is the highest use north-south roadway in the Township. A
21 major portion of its traffic is vehicles moving between I-280 to the north and Route 24 to the
22 south. It also is a major location of offices, retail properties, banks, and the Civic Center
23 Municipal Complex housing Town Hall, Police Headquarters, the Library and the High School.
24

25 Eisenhower Parkway (CR 609) is vital to north-south traffic mobility on the westerly side of the
26 Township. However, it is a relatively short roadway that runs only between South Orange
27 Avenue and I-280 in Roseland. If it were extended to Route 24 to the south it might attract
28 traffic now on Livingston Avenue.
29

30 Laurel Avenue, another bearer of traffic to and from I-280, is a residential street connecting with
31 Shrewsbury Drive.
32

33 Walnut Street/Passaic Avenue (both CR 607), and the Shrewsbury Drive (CR 635)/East Cedar
34 Street (CR527) /Old Short Hills Road (CR527) link are the only roadways other than JFK
35 Parkway that directly connect the Township to communities to the south.
36

37 **Limits of control over roadways.**

38
39 Placement or modification of traffic signal lights and stop signs are subject to State control, and,
40 to County control as well if on a County Road.
41

42 Every freeway, major arterial, minor arterial and collector roadway within Livingston is
43 controlled by a governmental authority other than the Township. Consequently,
44 recommendations in this Circulation Element do not include direct action and can only be that
45 the Township seek consent of other authorities to proposed improvements on those roadways.
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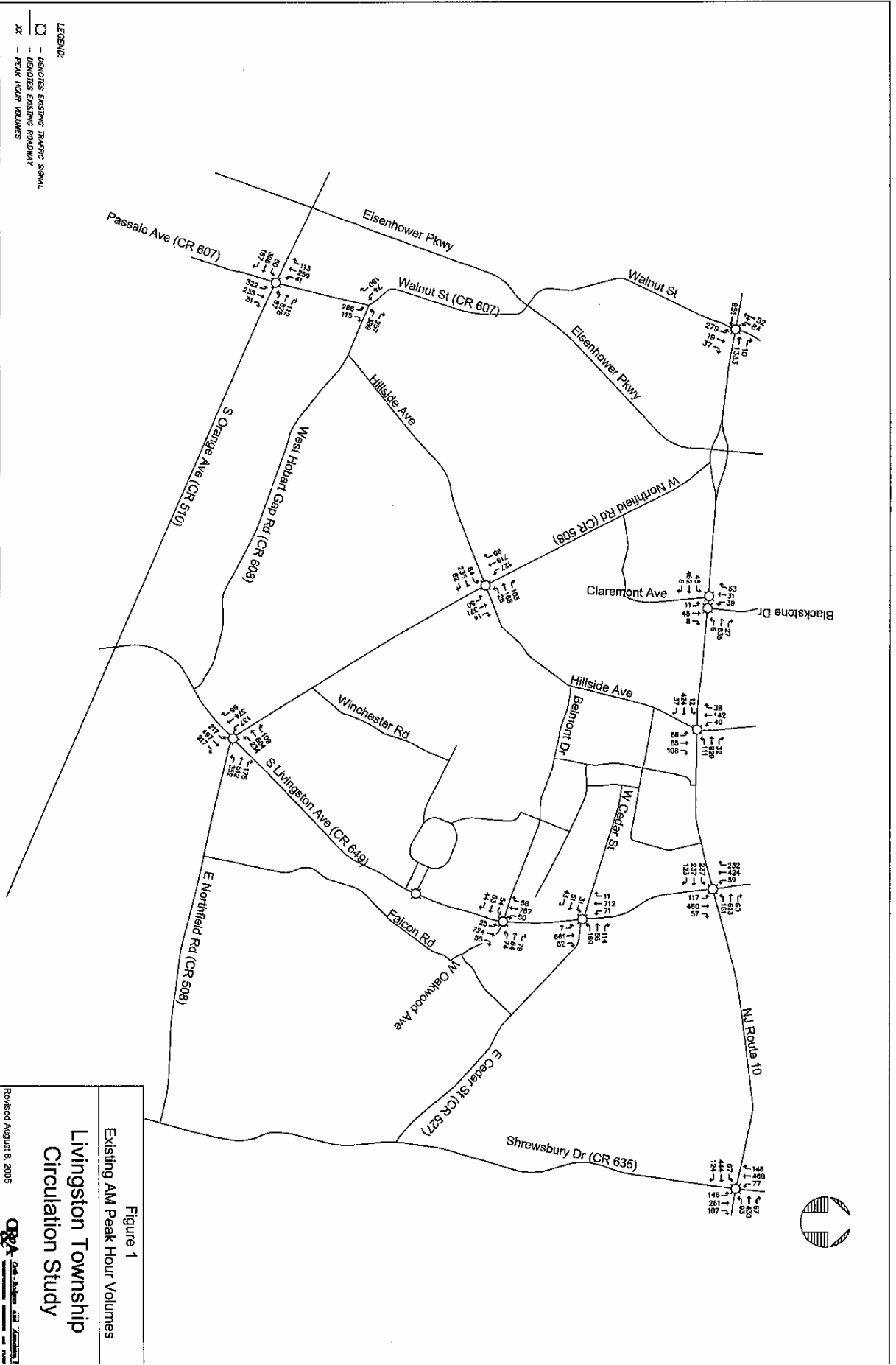
1 **Professional Study of Circulation**

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3 The transportation consulting firm of Orth-Rodgers Associates, Inc. was engaged to perform a
4 study of Livingston traffic and safety conditions. That study included traffic counts made by
5 them during 2005, and review of other data from recent years. The Orth-Rodgers March 1, 2006
6 report “Livingston Township Circulation Study” to the Township Council and the Planning
7 Board has been of great help in the preparation of this Circulation Plan Element. The Tables in
8 this Circulation Plan Element are derived from that report. Figures were selected from that
9 report and bear the numbers in that report,

10
11 **Existing Conditions**

12
13 Traffic volumes at key intersections were measured by Orth-Rodgers. The study determined that
14 the morning peak traffic is in the period from 7:45 a.m. to 8:45 a.m., while the evening peak
15 period is from 5:00 p.m. to 6:00 p.m. The volumes for the morning peak period are shown in
16 *Figure 1*, and those for evening peak period are shown in *Figure 2*. Average daily volumes for
17 key road segments are shown in *Figure 3*.

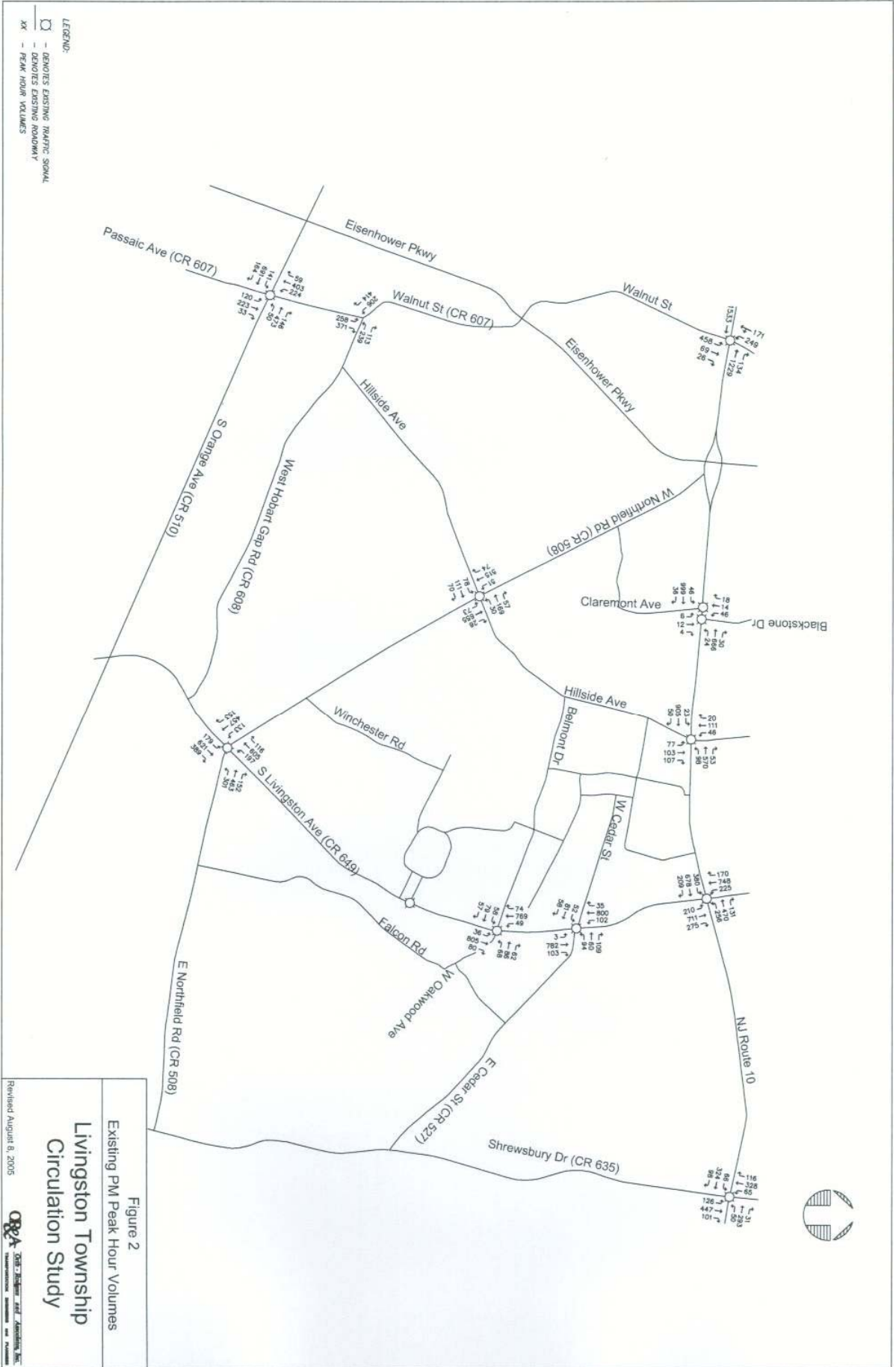
18
19 Many intersections of key roadways either present traffic flow delays or safety hazards that
20 justify improvements. Delays at intersections were measured at peak traffic hours and are
21 described as “Level of Service”. Safety hazards were identified through an analysis of accident
22 reports. Correctable conditions regarding pedestrian safety, and opportunity for bicycle routes
23 and mixed use trails, have also been identified.

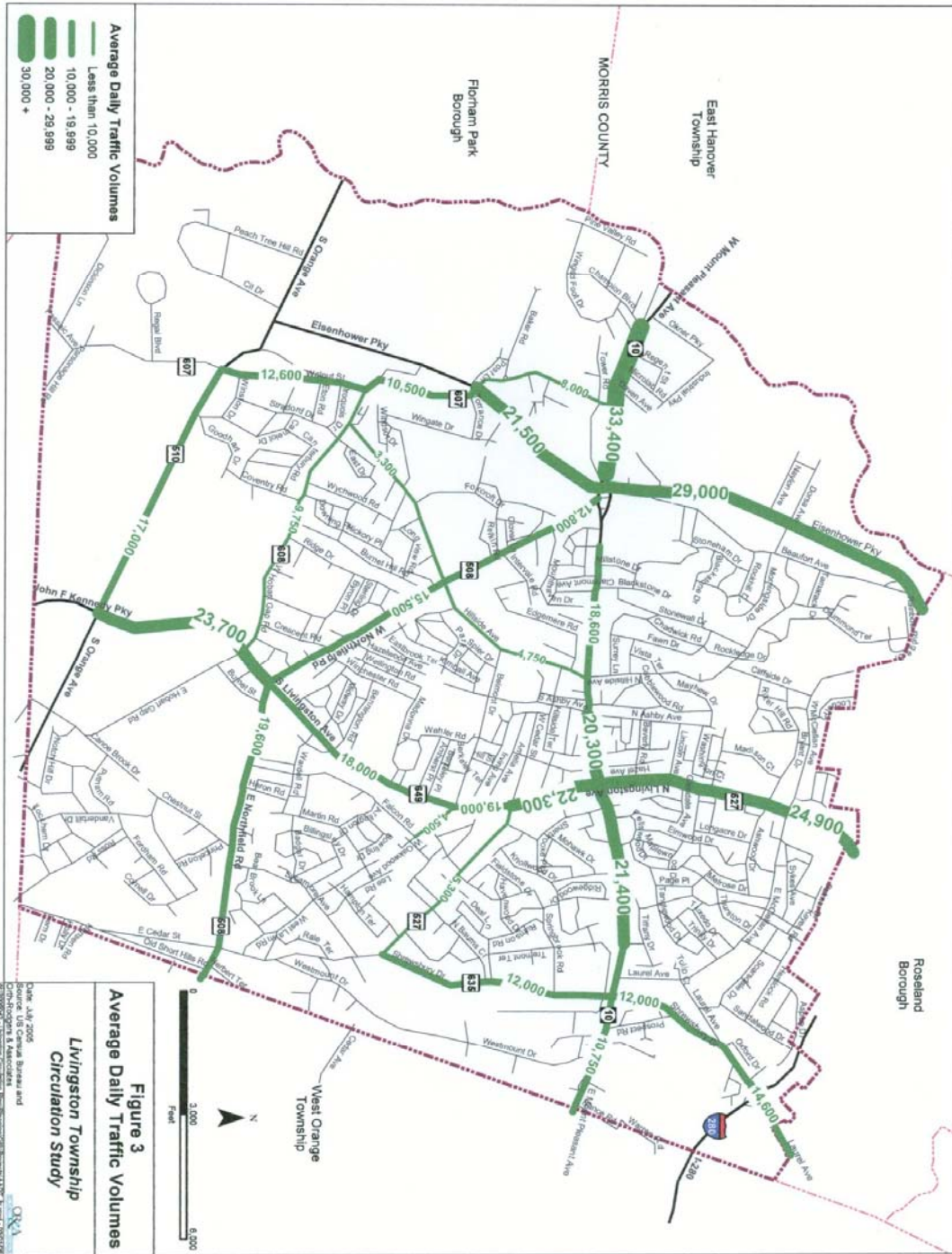


LEGEND:
 □ DENOTES EXISTING TRAFFIC SIGNAL
 --- DENOTES EXISTING ROADWAY
 XX -- PEAK HOUR VOLUMES

Figure 1
 Existing AM Peak Hour Volumes
 Livingston Township
 Circulation Study
 Revised August 8, 2005







1 **Level of Service**

2
3 Level of Service “grades” intersections by expected traffic delay.

4
5 **Unsignalized Intersections.** At intersections without traffic lights (“unsignalized
6 intersections”), levels of service are identified by lower case letters. Levels of Service for such
7 intersections range from Level of Service “a” (indicating average delays of 10 seconds or less) to
8 Level of Service “f” (indicating average delays greater than 50 seconds).

9
10 Level of Service “d” is generally considered as the acceptable limit of delay for most drivers in a
11 suburban setting. Levels of Service “e” and “f” are considered unacceptable. The Levels of
12 Service for unsignalized intersections are described in Table V-2.

13
14
15 Table V-2: Level of Service for Unsignalized Intersections

Level of Service	Average Total Delay per Vehicle (seconds)
a	0 to 10.0
b	10.1 to 15.0
c	15.1 to 25.0
d	25.1 to 35.0
e	35.1 to 50.0
f	over 50

16
17
18 **Signalized Intersections.** Levels of Service for signalized intersections are identified
19 by capital letters and are described in Table V-3.

20
21 Table V-3: Level of Service for Signalized Intersections

Level of Service	Average Total Delay per Vehicle (seconds)
A	0 to 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	over 80.0

22
23 At signalized intersections, factors that affect the capacities of the approaches to the intersection
24 include width of approach, number of lanes, signal ‘green’ time, turning percentages, truck
25 volumes, etc. Delays cannot be related to capacity in a simple one-to-one fashion. It is possible
26 to have substantial delays at the level of service ‘F’ without exceeding roadway capacity if one
27 or more of the following conditions exist:

- 28
- Long signal cycle lengths;
 - A particular traffic movement experiences a long ‘red’ time; or,
- 29

- Progressive movement for a particular lane group is poor.

Existing Level of Service Conditions

Capacity analyses were performed for nine signalized intersections and one unsignalized intersection that were identified as most-likely in need of remediation. Their AM peak hour Levels of Service are illustrated in *Figure 4*. PM peak hour Levels of Service are illustrated in *Figure 5*.

AM Peak Hour Levels of Service

During the AM peak hour, three intersections have an average level of service considered to be failing.

The greatest delay is experienced at the intersection of E. Mt. Pleasant Avenue and Shrewsbury Drive: graded “F” because of an average delay of 170 seconds per vehicle. Three of the four approaches to that intersection have a Level of Service of “F,” with the southbound through/right movement having the greatest delay at 424 seconds.

The northbound approach to W. Mt. Pleasant on Hillside Avenue operates at an “F”, with an average delay of 116 seconds.

The South Orange Avenue and Walnut Street/Passaic Avenue intersection is failing at an overall Level of Service of “E” and an average delay of 75 seconds. Both the left and the through/right movements on the westbound approach are graded “F”.

At Walnut Street and West Hobart Gap Road, the only unsignalized intersection having a volume of traffic deemed high enough to justify having a Level of Service analysis, there is an average delay of 64 seconds and an overall Level of Service “F”.

Two signalized intersections have an overall level of service “D”: South Livingston Avenue and Northfield Road (47 second delay) and Northfield Road and Hillside Avenue (38 second delay).

On Livingston Avenue, the signalized intersections with Mt. Pleasant Avenue, W. Cedar St./E. Cedar St., and Belmont Drive/ W. Oakwood Av. all operate at an acceptable AM Level of Service of “C”.

PM Peak Hour Levels of Service

Most of the intersections examined process their heavier traffic volumes in the evening peak hour. Therefore, Levels of Service then are typically worse than in the morning peak hour. Five intersections have failing levels of service during the PM peak hour; two of them with a Level of Service of “F” of “F”.

The greatest evening peak hour delay is experienced at Mt. Pleasant Avenue and Livingston Avenue, with an average delay of 87 seconds for all vehicles. At this intersection, the through/right movements on both the northbound and southbound approaches are rated “F”, while the left turn movements on both the eastbound and westbound approaches are also “F”.

1 However, the through movements on the eastbound and westbound approaches experience only
2 modest delays.

3
4 The intersection graded “F” is Walnut Street and West Hobart Gap Road.

5
6 In addition:

7
8 At the intersection of South Livingston Avenue and Northfield Road, the northbound
9 through/right and the southbound left are “F” movements.

10
11 The northbound movements at Mt. Pleasant Avenue and Walnut Street operate at “F”
12 with delays of 107 to 113 seconds.

13
14 Two intersections are graded “E”:

- 15 • South Orange Avenue and Walnut Street/ Passaic Avenue,
- 16 • South Livingston Avenue and Northfield Road.

17
18 The average delay at South Orange Avenue and Walnut Street/ Passaic Avenue is 60
19 seconds. That is actually an improvement over the AM peak hour with its 75 second
20 average delay. The improved Level of Service is due to large reductions of traffic on both
21 the westbound and eastbound approaches as compared to morning peak hour volumes.

22
23 Three intersections operate at Level of Service “D”:

24
25 Conditions at Mt. Pleasant Avenue and Walnut Street are significantly worse in the PM
26 peak hour than the AM peak hour, with the average delay more than doubling from 34 to
27 74 seconds for a grade of “D”.

28
29 The intersection of South Livingston Avenue and Cedar Street operates at a Level of
30 Service “D”, with an average delay of 45 seconds per vehicle. Delays here would be
31 even greater if not for the voluntary actions of westbound motorists. They typically
32 queue in two lanes on the westbound approach despite the fact that the roadway is striped
33 as only one lane.

34
35 The intersection of Mt. Pleasant Avenue and Shrewsbury Drive operates at Level of
36 Service “D” with an average delay of 54 seconds.

37
38 The South Livingston Avenue intersection with Belmont Drive/West Oakwood Avenue operates
39 at a level of service “C”, with an average delay per vehicle of 15 seconds.

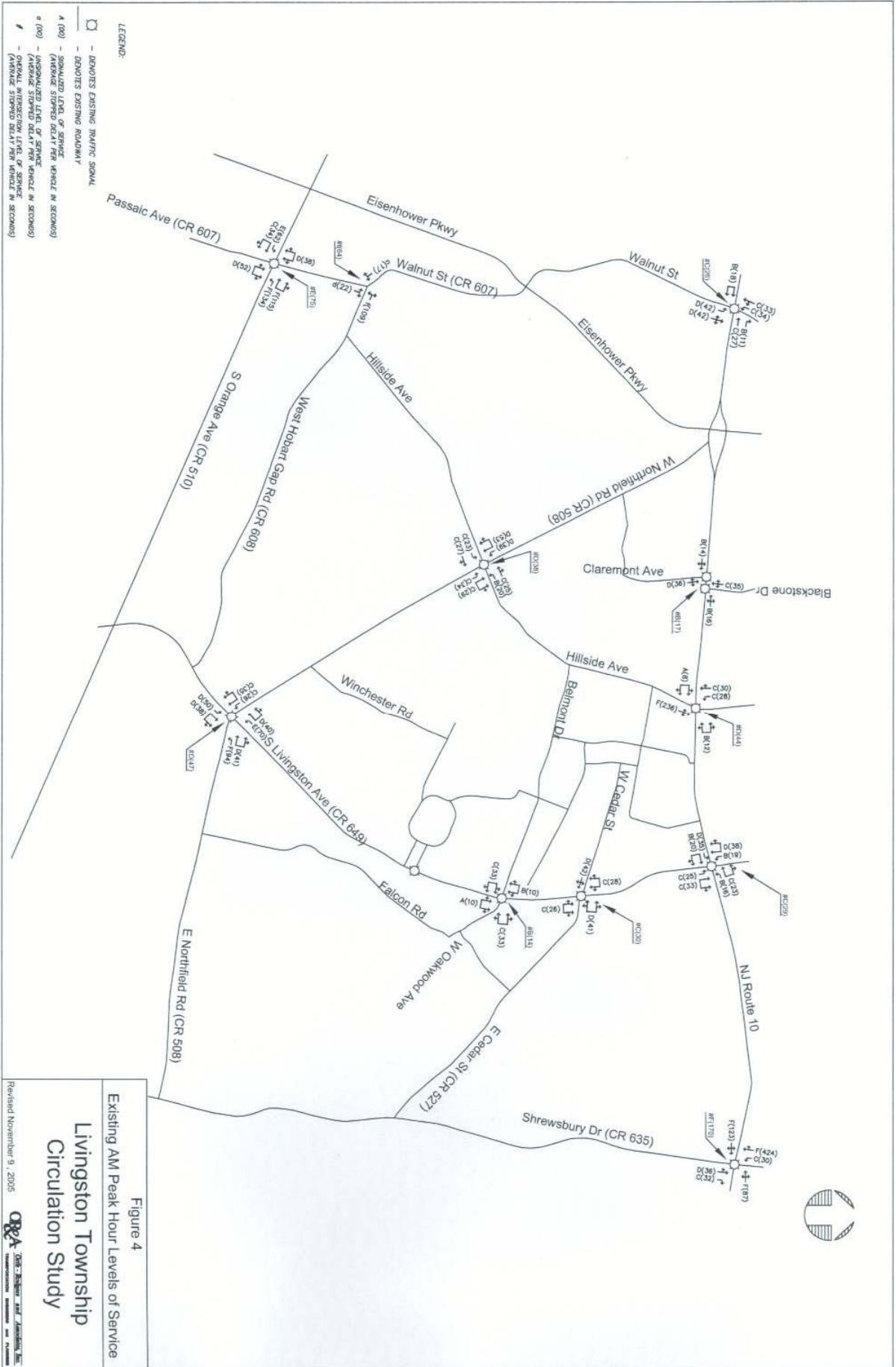


Figure 4
 Existing AM Peak Hour Levels of Service
 Livingston Township
 Circulation Study
 Revised November 9, 2005



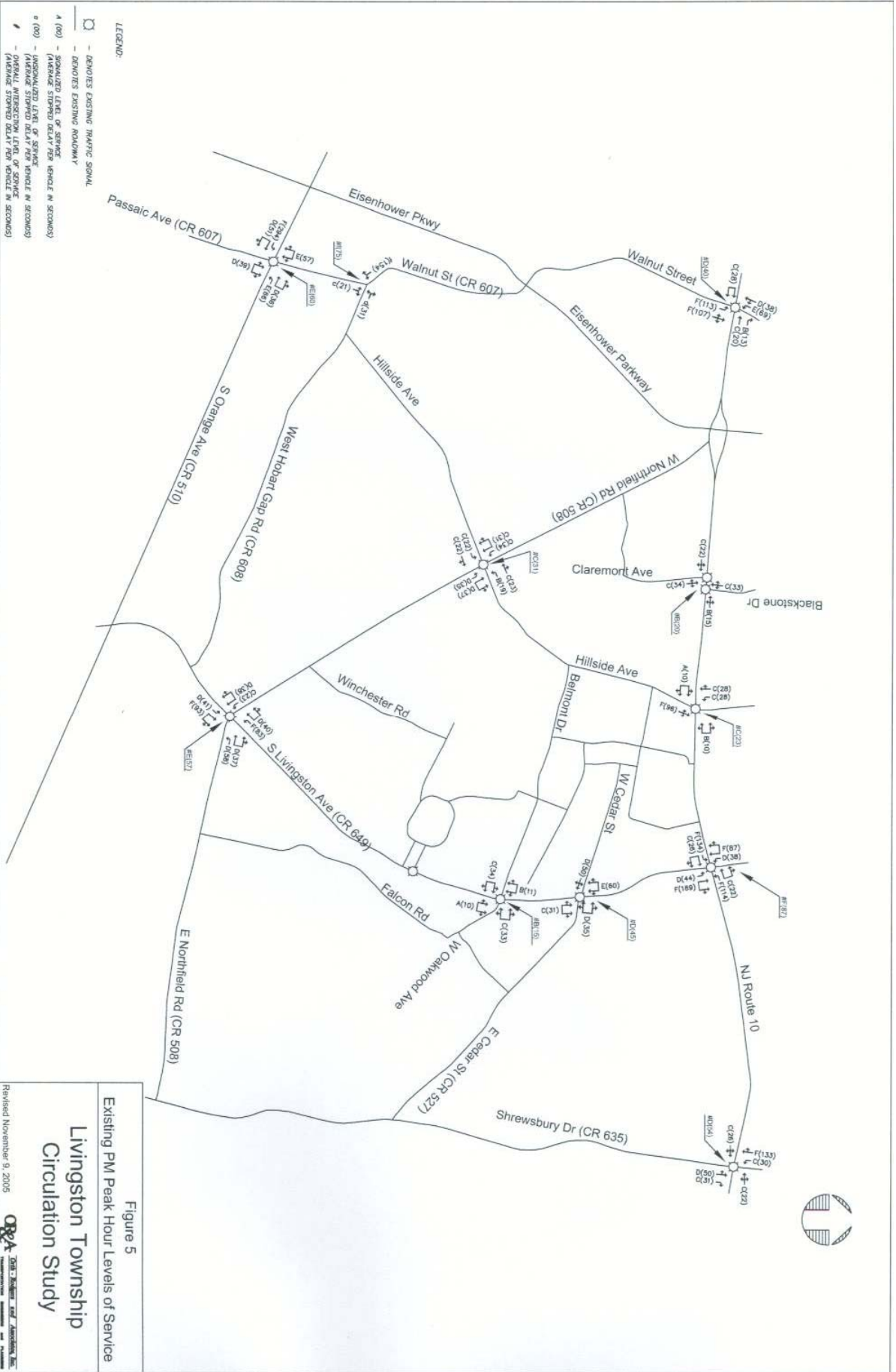


Figure 5
Existing PM Peak Hour Levels of Service
Livingston Township
Circulation Study
Revised November 9, 2005
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1 **Crash Analysis**

2
3 The following table indicates, in descending order, the Township intersections with the highest
4 numbers of crashes in 2003 and 2004 and the numbers of each type of crash.

5
6 **Table V-4: High Crash Level Intersections**

Rank	Intersection	Total Crashes	Crash Rate	Standout Crash Types
1	Livingston Circle	104	2.5	54 rear-end (37 SB); 29 sideswipe (14 EB, 10 of these while turning left; 10 WB, 3 while turning left); 10 right angle (4 EB vehicles ran red light, hit SB vehicle); 4 left turns (all illegal SB)
2	Mt. Pleasant Avenue and Livingston Avenue	53	1.6	26 rear-end (9 NB, 8 SB); 8 left turn (4 WB left turn vehicles)
3	South Livingston Avenue and Northfield Road	48	1.7	16 rear-end (5 EB, 5 NB); 16 left turn (7 EB left turn, 5 WB left turn)
4	West Mt. Pleasant Avenue and Okner Parkway	42	1.8	25 rear-end (11 EB, 11 WB); 4 sideswipe
5	South Orange Avenue and Walnut Street	38	1.9	15 rear-end (8 WB); 9 sideswipe (4 EB); 8 left turn (7 EB left turn); 4 right-angle (2 WB at fault)
6	South Livingston Avenue and East/West Cedar Street	34	1.8	12 left turn (7 NB turning, 5 SB turning); 11 sideswipe (8 SB, 3 NB)
7	West Mt. Pleasant Avenue and Walnut Street	32	1.1	15 rear-end (8 EB); 8 right angle; 7 sideswipe (4 EB)
8	South Livingston Avenue and Belmont Drive/West Oakwood Avenue	28	1.7	12 left turn (10 NB left turn); 9 sideswipe (5 NB, 4 SB)
9	South Orange Avenue and JFK Parkway	23	.8	9 rear-end (7 EB); 8 sideswipe (5 NB)
10	West Mt. Pleasant Avenue and Hillside Avenue	22*	NA	10 left turn (8 WB left turn vehicles); 5 rear-end (4 EB); 5 sideswipe
11	Eisenhower Parkway and Beaufort Avenue	16*	NA	10 rear-end (7 NB)

7 *Crash Rate represents annual crashes per million vehicles entering intersection for 2003-2004.*

8 ** Number of crashes at these intersections is for year 2004 only.*

9 *EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound*

10 A separate analysis of reports of accidents along the length of South Livingston Avenue from
11 Mt. Pleasant Avenue to Northfield Road, disclosed that in the same two-year period there were
12 160 accidents in addition to the crashes included in Table V-4. 125 of those accidents occurred
13 at driveways.

14
15 **Livingston Traffic Circle**

16
17 The traffic circle at the W. Mt. Pleasant Avenue (SR 10), Eisenhower Parkway, W. Northfield
18 Road junction presents unusual challenges. This is not a conventional traffic circle, because
19 Eisenhower Parkway traffic goes through it rather than around. The design results in at least 17
20 legal potential traffic flows, and the risk of illegal turns. There were 104 crashes in the two-year

1 study period - almost twice the number at any other site and 24% of the total crashes in the
2 Township.

3
4 **Remedial Actions** Some remedial actions may improve Levels of Service at the same time
5 that they reduce accidents. Others may serve only one of those objectives. As noted earlier,
6 recommendations concerning signals, as well as recommendations for striping on all but local
7 streets, will require County or State approval for implementation.

8
9 **Recommendation: W. Mt. Pleasant Avenue/Hillside Avenue** intersection should be
10 improved in two ways –

- 11
12 a. In both eastbound and eastbound directions, the curbside
13 lanes should be for through and right-turn traffic, but the
14 other lanes should be left-turn only.
15
16 b. Change the timing on the traffic lights to establish split
17 signal phasing for turning vehicles.
18

19 **Recommendation: W. Mt. Pleasant Avenue/Walnut Street** intersection - Shift two
20 seconds of signal time from the eastbound/eastbound signal to the
21 northbound splitphase signal. This would reduce northbound
22 evening peak delays for jug handle and Walnut Street traffic from
23 the current 110 seconds to 69 seconds, and would slightly decrease
24 average delay for the entire intersection. (There would be minor
25 four-second increases in eastbound and westbound delays as a
26 trade-off.)
27

28 **Recommendation: E. Mt. Pleasant Avenue/ Shrewsbury Drive** intersection should
29 be improved in several ways –

- 30
31 a. E. Mt. Pleasant Avenue’s roadway should be re-striped to
32 provide two 12-foot lanes in each direction: a through and
33 right-turn lane and a left-turn-only lane.
34
35 b. Consideration should be given to establishing paved
36 shoulders, curbing and sidewalks on E. Mt. Pleasant
37 Avenue.
38
39 c. Widen the southbound approach of Shrewsbury Drive so
40 that three lanes can be provided both southbound and
41 northbound on Shrewsbury Drive: a through and right-turn
42 lane, a through-only lane, and a left-turn-only lane.
43
44 d. Either make the Shrewsbury Drive left-turn lane lights
45 protected signals, or post a sign, facing south, reading
46 “Opposing Traffic Has Delayed Green”.
47
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Recommendation: So. Livingston Avenue/Northfield Road intersection - the County signal timing directive should be updated in the NJDOT format, and the eastbound and westbound left-turn clearance phase increased by 1 to 2 seconds to reduce crash risks.

Recommendation: Mt. Pleasant Avenue/Livingston Avenue intersection - visibility of traffic signals at this busy intersection should be improved by installing 12” signal heads in place of the 8” signal heads. (Additional recommendations are made later in the section on pedestrian safety.)

Recommendation: So. Livingston Avenue/Cedar Street intersection – should be improved four ways

- a. The Cedar Street signals, timed for 14 seconds, should be “actuated” so that 7 seconds of green is the norm and an additional 7 seconds are provided only when the sensors already installed determine that traffic requires the additional time. This will reduce delays on So. Livingston Ave.
- b. On the westbound side of East Cedar Street, re-stripe the roadway to create a left-turn-only lane and a through and right-turn lane.
- c. The Official Map should be amended to eliminate the off-set nature of East Cedar and West Cedar Streets and the two streets should then be re-aligned.
- d. When those streets have been re-aligned
 - (1) Green lights for eastbound and westbound traffic can be simultaneous rather than sequential.
 - (2) Dedicated left-turn lanes should be established on So. Livingston Avenue.

Recommendation: So. Livingston Avenue/Belmont Drive/West Oakwood Drive Intersection – should be improved in two ways:

- a. Northbound and southbound traffic on So. Livingston Avenue should be provided a permissive left-turn signal.
- b. The two lanes in each direction on So. Livingston Avenue should be re-stripped to provide a through and right-turn lane and a left-turn-only lane.

1 **Recommendation: So. Livingston Avenue/Concord Drive** intersection - traffic
2 delays caused by cars entering or leaving the ShopRite driveway,
3 and accident risks, can be reduced, by
4

5 a. Relocating the ShopRite driveway so that it is directly
6 opposite Concord Drive.

7
8 b. Installing a traffic signal at that intersection.
9

10 **Recommendation: Livingston Traffic Circle** – long-term and near-term actions are
11 recommended.

12
13 a. Long-term – Request that NJDOT conduct a new
14 comprehensive study of the junction’s design, the potential
15 for reduction of hazards by redesign and the reduction of
16 traffic flows by providing alternate roadways, such as the
17 joining of Industrial Parkway and Executive Parkway.
18

19 b. Near-term – Request that NJDOT

20
21 1. Install overhead signage on SR 10 west of the
22 Circle to indicate appropriate lanes to be used by
23 eastbound vehicles for permitted traffic flows.
24

25 2. Install similar signage east of the Circle for the
26 same purpose.
27

28 3. Control right turns from southbound Eisenhower
29 Parkway by a dedicated traffic light.
30

31 4. Modify the traffic light controlling vehicles entering
32 the Circle from Northfield Road so as to separately
33 control those turning west on SR 10 and those that
34 will go north on Eisenhower Parkway. Also, install
35 overhead signs indicating proper lanes for those
36 traffic flows.
37

38 5. Change the landscaping in the islands of the Circle
39 to eliminate obstruction of driver lines of sight.
40

41 **Recommendation: Livingston Circle By-pass** Since NJDOT studies have clearly
42 established that connection of Industrial Parkway and Executive
43 Parkway would provide relief upon Livingston Traffic Circle
44 conditions, efforts should continue to resolve environmental issues.
45

46 **Recommendation: Livingston Avenue Driveways & Business Parking** – The 125
47 reported accidents at business driveways along Livingston Avenue
48 warrant the following recommendations:

- a. Adjacent business properties should share common parking areas and reduce the number of driveways.
- b. Wherever possible, reduce or eliminate the number of business driveways on Livingston Avenue, Mt. Pleasant Avenue and Northfield Road by requiring driveways to be on intersecting side streets.
- c. Enable the Planning Board to reduce the number of required parking spaces on sites where a., b. and c. above have been implemented.

Recommendation: Livingston Avenue/Mt. Pleasant Avenue By-pass - Establish a by-pass road along the westerly side of Canoe Brook between Arden Road and E. Mt. Pleasant Avenue so that vehicles transiting both E. Mt. Pleasant Avenue and S. Livingston Avenue can by-pass the Livingston Avenue/Mt. Pleasant Avenue intersection.

Recommendation: Livingston Town Center Area - Traffic conditions should be closely monitored as the Livingston Town Center becomes occupied and active. As conditions warrant, efforts should be made to obtain County and State approval of further improvements, such as:

- a. Installing a traffic light on E. Mt. Pleasant Avenue at the intersection with the Esplanade and with the driveway of the retail complex on the opposite side of the avenue.
- b. Upon installation of that light, eliminate the left-turn-in and -out prohibitions at the Esplanade, and relocate the mid-street pedestrian crosswalk and signals to that light.

Pedestrians

Improving pedestrian safety is an important part of making the downtown areas of the Township more pedestrian-friendly. Segments of Mt. Pleasant Avenue have significant and increasing pedestrian traffic but no sidewalks. This is particularly a problem in the westerly portion of the Township.

Recommendation: All intersections on Livingston Avenue, Mt. Pleasant Avenue, Northfield Road and at the Livingston Traffic Circle, and all crosswalks at Township schools and recreation facilities, should have continental-style crosswalk striping; except that principal intersections may have crosswalks of paving material of contrasting color delineated by 10-12 inch-wide white reflective bands.

Recommendation: Pedestrian countdown traffic signals should be installed

at the Intersections: Livingston Avenue/Mt. Pleasant Avenue; Livingston Avenue/Belmont Drive/Oakwood Avenue; Shrewsbury Drive/Mt. Pleasant Avenue; and at the Livingston Traffic Circle.

Recommendation: “Yield to Pedestrians” signs should be posted on approaches to intersections that have striped crosswalks not protected by pedestrian traffic signals.

Recommendation: New asphalt sidewalks should be prohibited. Existing asphalt sidewalks when replaced, and all new sidewalks, should be of concrete or made with pavers.

Recommendation: All sidewalks in residential zoning districts should be not less than four (4) feet wide, and those on streets within the Business Improvement District should be not less than five (5) feet wide.

Recommendation: Install sidewalks, where absent, on both sides of entire length of Mt. Pleasant Avenue.

Bicycles

Presently, there are no provisions for bicycle paths or routes within the Township. Designation of bicycle routes can promote that mode of in-town mobility and improve cyclist safety. NJDOT guidelines for determining bicycle compatibility of roads are set forth in Table V-5.

Table V-5: NJDOT Bicycle Compatibility Guidelines.
(Based Upon Average Annual Daily Traffic “ADDT”)

Condition I: AADT 1200-2000

Speed Limit	Urban w/ Parking	Urban w/o Parking	Rural
< 30 mph	Shared lane (12 ft.)	Shared lane (11 ft.)	Shared lane (10 ft.)
31-40 mph	Shared lane (14 ft.)	Shared lane (14 ft.)	Shared lane (12 ft.)
41-50 mph	Shared lane (15 ft.)	Shared lane (15 ft.)	Shoulder (3 ft.)
>50 mph	Not Applicable (NA)	Shoulder (4 ft.)	Shoulder (4 ft.)

For volumes less than 1200, a shared lane is acceptable.

Condition II: AADT 2000-10,000

Speed Limit	Urban w/ Parking	Urban w/o Parking	Rural
< 30 mph	Shared lane (14 ft.)	Shared lane (12 ft.)	Shared lane (12 ft.)
31-40 mph	Shared lane (14 ft.)	Shared lane (14 ft.)	Shoulder (3 ft.)
41-50 mph	Shared lane (15 ft.)	Shared lane (15 ft.)	Shoulder (4 ft.)
>50 mph	Not Applicable (NA)	Shoulder (6 ft.)	Shoulder (6 ft.)

Condition III: AADT over 10,000 or Trucks over 5%

Speed Limit	Urban w/ Parking	Urban w/o Parking	Rural
< 30 mph	Shared lane (14 ft.)	Shared lane (14 ft.)	Shared lane (14 ft.)
31-40 mph	Shared lane (14 ft.)	Shoulder (4 ft.)	Shoulder (4 ft.)
41-50 mph	Shared lane (15 ft.)	Shoulder (6 ft.)	Shoulder (6 ft.)
>50 mph	Not Applicable (NA)	Shoulder (6 ft.)	Shoulder (6 ft.)

Note: Whenever possible, a shoulder of at least 8 feet should be provided on roadways with an AADT greater than 10,000 vehicles.

1 Applying those standards, Orth-Rodgers identified roadways that meet the State guidelines and
 2 are identified in this Circulation Element as “Bicycle Compatible – Category A”, and other
 3 roadways which do not meet all guidelines but are identified as “Bicycle Compatible – Category
 4 B”.

5
 6 Roadways in Category A are shown on *Figure 6* in green, and Category B roadways are shown
 7 in blue. Use of these roadways would allow bicyclists to travel between northern and eastern
 8 residential areas of the Township and the Civic Center, the Senior Community Center and the
 9 Livingston Mall. They would include Hillside Avenue, McClellan Avenue, Falcon Road, limited
 10 portions of East Cedar Street, Tiffany/Broadlawn, Walnut Street and Woodcrest Drive/Ashby
 11 Avenue.

12
 13 Those in Category B are roadways which have low or moderate traffic volumes and which have
 14 lower speed limits, but which allow on-street parking. For streets that permit on-street parking,
 15 NJDOT Guidelines normally require 12 or 14 foot travel lanes in addition to the width needed
 16 for two parking lanes. However, on-street parking is rarely used on residential streets in
 17 Livingston Township. In part this is because virtually every home has a garage and a driveway
 18 of adequate length to accommodate personal vehicles. Further, the Township prohibits on-street
 19 parking from 2 to 6 AM. Because of the infrequent occurrence of on-street parking, the
 20 roadways in Category B typically have ample width to separate passing vehicles from bicyclists,
 21 and the roadways can comfortably be used by bicyclists of all skill levels.

22 Roadways that do not meet NJDOT standards, or the more liberal Category B standards, are Mt.
 23 Pleasant Avenue, most of Livingston Avenue from Carrillon Circle south to Northfield Road,
 24 Northfield Road, Hobart Gap Road, portions of Walnut Street and East Cedar Street from South
 25 of Whittier Way to Northfield Road. Bicycle use on those roadways should not be encouraged
 26 unless significant improvements are provided.

27
 28 A town-wide system of bicycle routes proposed by Orth-Rodgers is shown *Figure 7*. Additional
 29 routes may also be appropriate.
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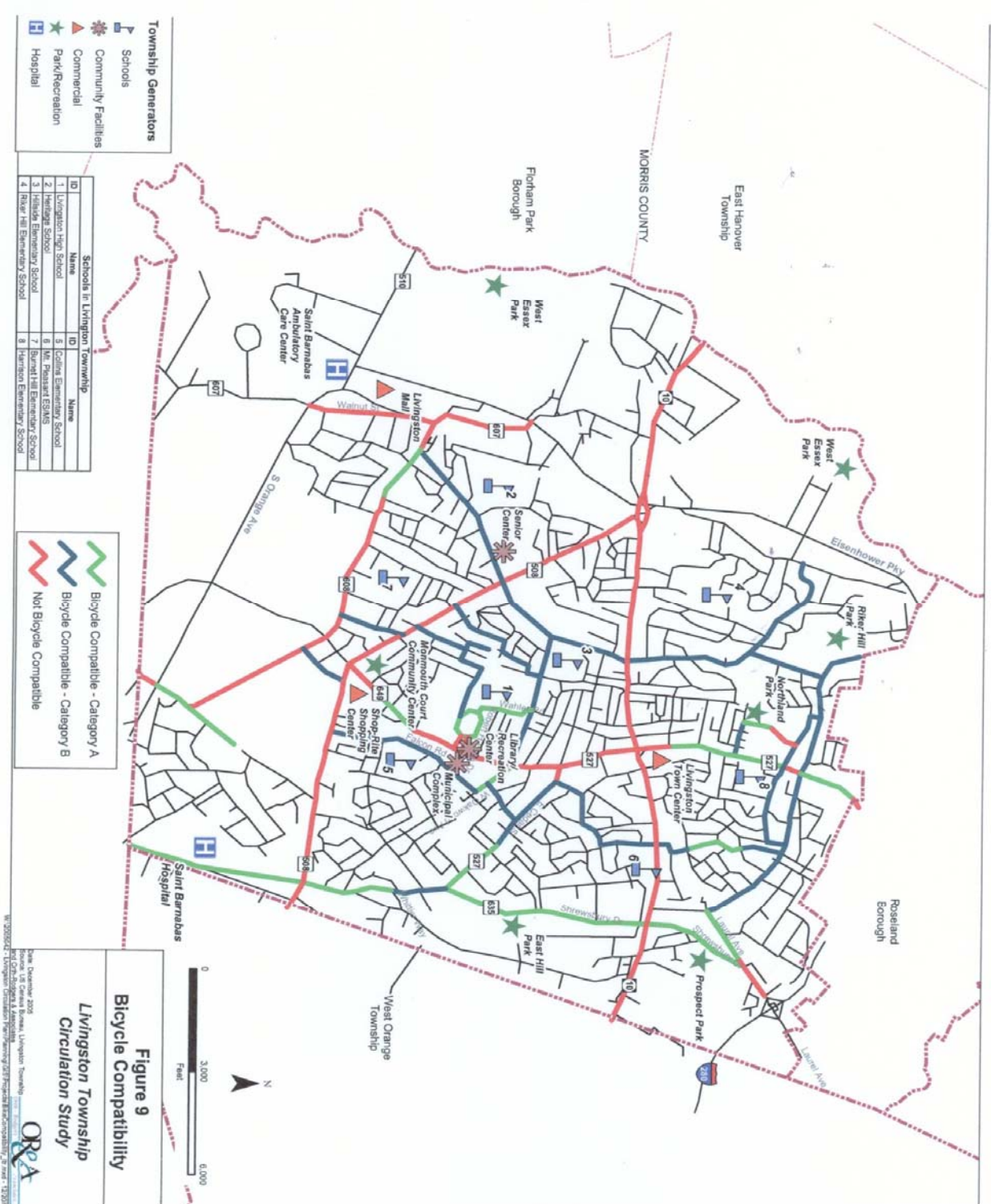


Figure 6

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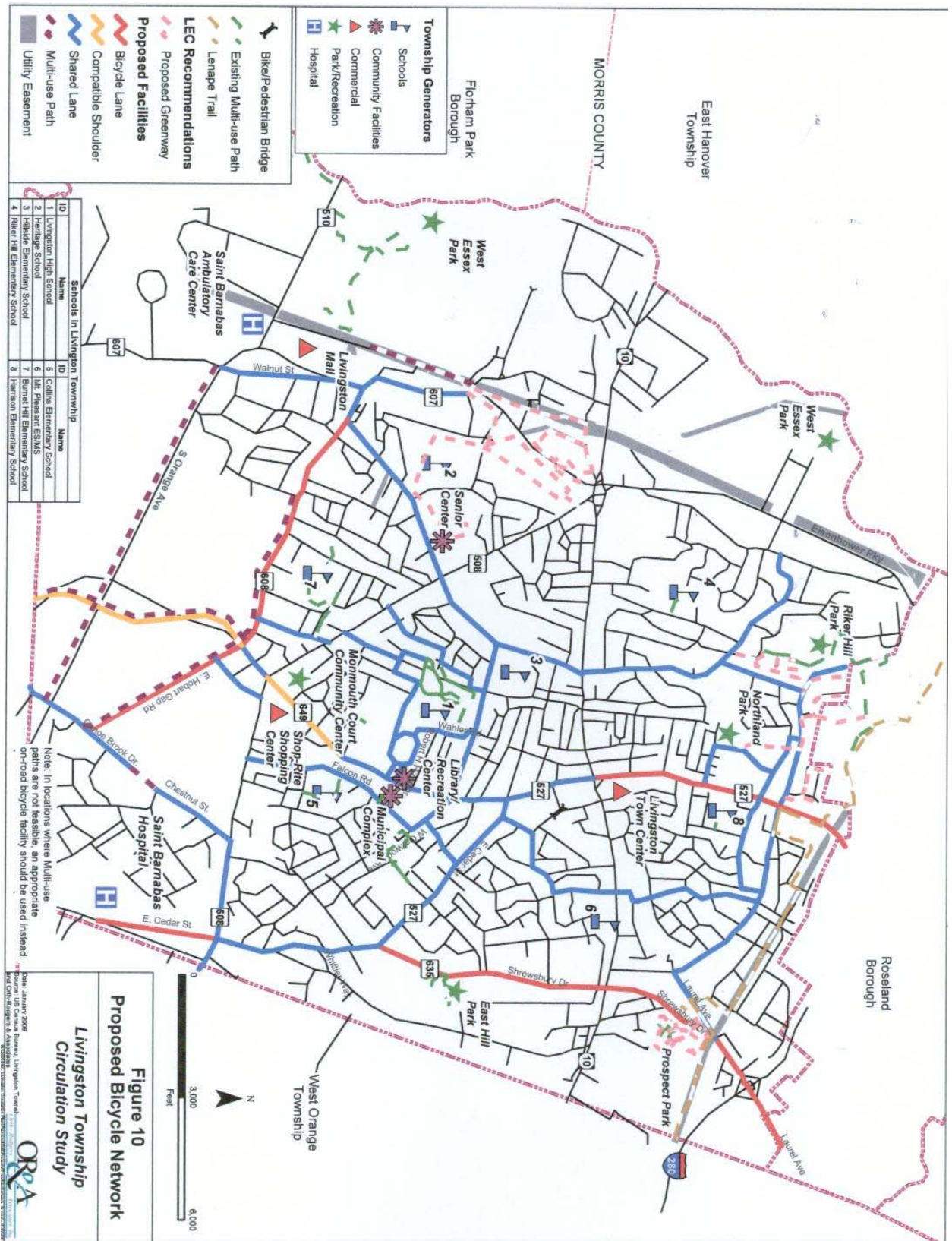


Figure 7

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1 **Recommendation:** Roadways in Category A and Category B should have bicycle
2 lanes painted and appropriate signs posted. Request Essex County
3 to designate shoulders of Shrewsbury Drive for bicycles.
4

5 **Recommendation:** Hobart Gap Road and S. Orange Avenue offer opportunities to
6 integrate the southerly portion of the Township into the bicycle
7 compatible roadway network if the City of East Orange will allow
8 a bicycle path to be built along the fringe of the water reserve.
9

10 **Recommendation:** Construct a pedestrian/bicycle bridge across Canoe Brook at
11 Sherbrooke Parkway.
12

13 **Recommendation:** Identify other opportunities for safe bicycle routes consistent with
14 traffic flows and parking needs.
15

16 **Recommendation:** Provide bicycle racks at municipal buildings, recreation facilities,
17 and schools, and at shopping destinations and commuter bus stops.
18

19 Recommendations for establishing pedestrian/bicycle paths on utility rights-of-way will be found
20 in Section VIII, the Recreation & Open Space Plan Element.
21

22
23 **Public Transportation** Five inter-city bus routes serve the Township.
24

25
26 **New Jersey Transit Route 70** runs between the Livingston Mall and Newark Penn
27 Station. Within the Township, it travels along Eisenhower Parkway, South Orange
28 Avenue and JFK Parkway. After leaving the Township eastbound, it passes through
29 northern Union County and southern Essex County to Newark Penn Station, stopping at
30 regional destinations such as the Short Hills Mall, and the Morris and Essex rail stations
31 in Summit and Milburn. Passengers may also transfer to New Jersey Transit Route 73 at
32 the Livingston Mall for increased service within the region. Weekday peak hour intervals
33 between buses range from 18 to 25 minutes. During the morning commute period of 6:00
34 AM to 9:00 AM, there are six runs to Newark, and eight to Livingston Mall. The
35 Saturday peak hour intervals are approximately 30 minutes, and Sunday peak hour
36 intervals are 60 minutes.
37

38 **New Jersey Transit Route 71** provides daily service between Essex Mall in West
39 Caldwell and Newark Penn Station. Within Livingston Township, Route 71 travels along
40 North Livingston Avenue and Mount Pleasant Avenue. Route 71 provides connections to
41 the Morris and Essex rail lines in East Orange and Orange. During the morning commute
42 period of 6:00 AM to 9:00 AM, there are seven runs to Newark, and 13 to West Caldwell.
43 Route 71 has peak hour intervals of approximately 20 minutes on weekdays and 30-60
44 minutes on weekends.
45

46 **New Jersey Transit Route 73** provides daily service between the Livingston Mall and
47 Newark Penn Station via the towns of Orange, West Orange, and East Orange. Route 73
48 provides the most extensive service in Livingston Township, traveling along Eisenhower

1 Parkway, Mount Pleasant Avenue, South Livingston Avenue, and Northfield Road.
2 Route 73 also operates limited service to Saint Barnabas Hospital on Old Short Hills
3 Road as well as express routes that travel along I-280 from Eisenhower Parkway
4 (bypassing the remaining stops in Livingston Township) to Northfield Avenue in Orange
5 Township. It provides service to the Morris and Essex rail lines in East Orange and
6 Orange. Passengers may transfer to New Jersey Transit Route 70 at the Livingston Mall
7 or to New Jersey Transit Route 71 at Mount Pleasant Avenue and Livingston Avenue.
8 During the morning commute period of 6:00 AM to 9:00 AM, there are 15 runs to
9 Livingston, and eight to Newark. Route 73 has peak hour intervals ranging from 12 to 30
10 minutes on weekdays and of 30 minutes on weekends.

11
12 **Morris County Metro Route 3** is sponsored by Morris County with cooperation from
13 New Jersey Transit. MCM 3 provides weekday and Saturday service between the
14 Livingston Mall and the Morris County offices in Morristown. It also stops in Madison,
15 and serves regional destinations such as the Short Hills Mall, Fairleigh Dickinson
16 University, and Drew University. MCM 3 is a limited service route, operating primarily
17 during the day with one-hour headways.

18
19 **Community Coach Route 77** runs daily between Morristown and the Port Authority Bus
20 Terminal in Manhattan. Route 77 stops in the towns of Clifton, East Hanover, East
21 Orange, Florham Park, Livingston, West Orange, and Whippany. Within Livingston
22 Township, Route 77 typically varies between stopping at the intersection of Mt. Pleasant
23 Avenue and Okner Parkway or the Park & Ride Lot at the Livingston Mall. It always
24 stops at the Livingston Circle, and South Livingston Avenue and Mt. Pleasant Avenue.
25 This route is almost entirely focused on serving the traditional commute into New York
26 City. During the morning commute period of 6:00 AM to 9:00 AM, there are 17 runs to
27 New York City, and only one to Livingston. Route 77 has peak hour ontervals ranging
28 from 10 to 20 minutes.

29
30 There is no local in-town bus service, although a limited door-to-door service is provided by the
31 Township to aged and handicapped residents by appointment. Most intra-city bus route stops are
32 for pick-up only or drop-off only.

33
34 The Township has completed arrangements to provide low-cost commuter parking both at the
35 County facility at the Richard Codey Arena in West Orange and at a Shriners' property in town.
36 The in-town effort is coupled with initiation of a limited Community Coach express service to
37 New York City. New ordinances limit on-street parking by commuters.

38
39 **Recommendation:** Continue to encourage the use of inter-city buses by providing or
40 arranging for low-cost off-street commuter parking facilities and
41 improved bus service.

42
43 **Recommendation:** The operators of inter-city bus routes should be requested to
44 provide local service on their buses while operating in the
45 Township.

46
47 **Recommendation:** The Township and the Business Improvement District should

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explore implementation of a shoppers' jitney service within the district if intercity buses do not provide requested local service.

Recommendation: Develop cooperative arrangements with non-residential property owners along inter-city bus routes to provide commuter parking in under-utilized parking spaces.

Recommendation: Continue to review, establish, amend and enforce parking restrictions that will reduce or eliminate use of residential streets for parking of vehicles of persons who utilize inter-city bus services.

Recommendation: Continue to explore the feasibility of establishing dedicated bus service to connect locations in the Township with commuter rail stations in nearby communities.

