# Downtown Lowell Transportation Study



City of Lowell, North Carolina August 2017





# Contents

**Current Conditions** 

Public Input

Recommendations

Technical Appendices Parking Evaluation Report NCDOT Memo: Proposed changes to NC 7 in Downtown Lowell

## Downtown Lowell Transportation Study

Lowell, North Carolina, is located in Gaston County and abuts both the town of McAdenville and city of Gastonia (see Figure 1). The primary objective of the Downtown Lowell Transportation Study is to evaluate options for aesthetic, safety and pedestrian improvements to public streets in downtown Lowell. A secondary objective of this study is to consider opportunities for enhancements along prominent roadway entrances and parking efficiencies into the downtown. The following report summarizes existing conditions, the public involvement process, and recommended transportation and streetscape improvements over the short and long term. The report is followed by two appendices: one submitted to the City describing options for reallocating on street parking in the downtown, and a memo submitted to NCDOT outlining proposed changes to lane markings along NC 7 in downtown Lowell.





### Study Area Context

Downtown Lowell is composed of six blocks of storefront retail and services and local government civic buildings. The downtown is surrounded by low density residential development and church or other private civic organization uses. Most downtown buildings face or access Main Street, and ancillary or parking access is available for these uses from side streets. Visitors and residents access the downtown by four major roadways: South Main Street, North Main Street, East 3<sup>rd</sup> Street/McAdenville Road, and West 1<sup>st</sup> Street. East 3<sup>rd</sup> Street/McAdenville Road intersects with I-85 (Exit 23) and continues south, becoming Main Street in McAdenville. South Main Street intersects with I-85 (Exit 22) and continues south, becoming Redbud Road in Gastonia. North Main Street becomes Lowell-Spencer Mountain Road and continues northward toward the towns of Spencer Mountain and Stanley. South Groves Street and South Church Street span over I-85 and connect to other regional networks, but are not generally considered major roadways into downtown Lowell. State highway 7 (NC 7) follows McAdenville Road from the east into downtown Lowell, continues south along Main Street, and then heads west on 1<sup>st</sup> Street into nearby Ranlo and Gastonia. The only traffic signals in the study area are on Main Street at the intersections with 1<sup>st</sup> and 3<sup>rd</sup> Streets. All major roadways in downtown Lowell are maintained by NCDOT.

### **Roadway Characteristics**

North Main Street (SR 2201) starts at the intersection of 1<sup>st</sup> Street as a two-lane undivided street with sidewalks back of curb or separated by a 1-2foot wide landscape area. Angled (pull-in) on street parking is available on either side of the northern half of the block. The landscape area widens slightly north of 2<sup>nd</sup> Street, and North Main drops on-street parking on the east side and includes parallel, unmarked parking on the west side. Beginning at 3<sup>rd</sup> Street/McAdenville Road, North Main Street widens to a 4-lanes undivided roadway with sidewalks separated from the curb by a varying 1-2-foot wide landscape area. The roadway has a posted 20 mile-per-hour speed limit northward to Caroline Avenue. At Caroline Avenue, North Main Street narrows to two undivided travel lanes with a sidewalk back of curb on the west side northward beyond Rogosin Boulevard. This section of the roadway has a posted 35 mile-per-hour posted speed limit.

South Main Street (SR 2329) has four lanes undivided with sidewalks separated from the curb by a narrow landscape area. South of the railroad crossing, the roadway widens to a five lane cross section (two lanes each direction with center turn lane) and has sidewalk on both sides. The sidewalk on the western side drops at Branch Street; the eastern sidewalk drops at Reid Street. South Main Street has a posted speed limit of 20 miles per hour from downtown to Branch Street where it increases to 35 miles per hour.

East 1<sup>st</sup> Street is an unmarked two-way residential roadway with a sidewalk on the northern side (separated by a landscape area of varying width) until the intersection with Groves Street. The intersection with Groves Street is controlled by stop signs, and the roadway has a posted speed limit of parated from the curb by a 1-3 foot landscape area westward toward Ash Street. The roadway has a posted speed limit of 20 miles per hour as far west

20 miles per hour. West 1<sup>st</sup> Street (NC 7) is a four-lane undivided roadway with sidewalks separated from the curb by a 1-3 foot landscape area westward toward Ash Street. The roadway has a posted speed limit of 20 miles per hour as far west as Rhyne Street where the speed limit increases to 35 miles per hour.

East 3<sup>rd</sup> Street/McAdenville Road (NC 7) is a two lane undivided street with a sidewalk, separated by a 1-2 foot landscape area, on the south side eastward toward Tennant Street. The posted speed limit increases to 35 miles per hour at Tennant Street. West 3<sup>rd</sup> Street is an unmarked two-way residential street and does not have any sidewalks. The presumed speed limit is 20 miles per hour but there are no signs along the roadway describing the posted speed limit. Other neighborhood streets in the study area are typically two-way unmarked neighborhood streets with no sidewalks have presumed speed limits of 20 miles per hour. These streets include Church Street, Hemlock Lane, 2nd Street, and Bridge Street.

### **Traffic Volumes**

NCDOT collected data in 2014 that estimates and summarizes the annual average volumes of traffic on major roadways in downtown Lowell (see Figure 2). The data shows heavier volumes nearest I-85 which is outside the study area. Average Annual Daily Traffic (AADT) was highest in the study area along Main Street between 3<sup>rd</sup> Street, estimated at 10,000 vehicles per day. Town staff report regular congestion on sections of NC 7 in downtown Lowell when traffic events on I-85 prompt detours along secondary roads between Exits 19 and 23.





FIGURE 3

### Data Collection Stations

In June 2016, 48-hour traffic counts and speed by vehicle class information were collected for locations on 1<sup>st</sup> Street, South Main, North Main, and 3<sup>rd</sup> Street/McAdenville Road (see Figure 3). Passenger vehicles and small trucks are the dominant vehicle type on all roadways. Bicycle traffic was heaviest on 1<sup>st</sup> Street; freight truck volumes were heaviest on North and South Main Streets. Table 1 describes the percent of each vehicle type per count station.

TABLE 1			ad Trailer	Long		le or A tire	assified
	Bikes	Carsa	2 Axle	Buser	~~2 <sup>A</sup>	Not C	la
SB N Main St	0.7%	76.4%	16.8%	0.2%	3.9%	2.1%	
NB N Main St	0.7%	61.7%	25.6%	0.3%	10.2%	1.5%	
SB S Main St	0.6%	62.6%	24.5%	0.8%	10.6%	0.7%	
NB S Main St	0.6%	63.7%	23.8%	0.6%	10.9%	0.4%	
EB 3rd Street	0.8%	63.7%	22.2%	0.6%	8.7%	3.8%	
WB 3rd Street	1.0%	66.6%	22.1%	0.3%	7.6%	2.3%	
EB 1st Street	1.1%	68.7%	22.3%	0.3%	6.7%	0.8%	
WB 1st Street	1.2%	71.8%	19.8%	0.3%	5.9%	0.8%	

Does not show vehicle classifications with less than 0.5% of total traffic

FIGURE 2

### **Traffic Speeds**

Speed data was collected for a 48 hour period at the collection stations on South Main Street, North Main Street, 1<sup>st</sup> Street and 3<sup>rd</sup> Street/McAdenville Road. Figure 4 shows the percent of all vehicles travelling in different tiers of speeds. (The width of blocks represent the percent of all traffic travelling in that speed tier.) For example, over 91% of all traffic travelled at speeds greater than 30 miles per hour westbound on 3<sup>rd</sup> Street. At all data collection locations, more than 50% of total traffic travelled in excess of the posted speed limit.



travelling within each speed tier. Refer to Figure 3 for location of each data collection station.

### AM/PM Conditions: Turning Movement

Morning and evening peak-hour turning movement data was collected at the intersections of Main and Railroad Street; Main and 1st Street; Main and 2nd Street; Main and 3rd Street; and Phillips and 1st Street. This data was collected to inform the development of alternative scenarios for the downtown and gateway corridors. Figure 5 shows the volume of turn movements collected during peak travel periods.



FIGURE 5

### Base Year Level of Service Analysis

TABLE 2

Intersection and Approach	Control	Base Year (2	016) No-Build	Design Year (2040) No-Build	
		AM	PM	AM	PM
Main Street & Railroad Street	Unsignalized	-	-	-	-
Eastbound		B-10.1	B-13	B-10.7	C-19.1
Main Street & First Street	Signalized	B (14.6 sec/veh)	B (14.9 sec/veh)	B (16.6 sec/veh)	B (18.9 sec/veh)
Eastbound		B-19.4	C-22.3	C-22	C-27.3
Westbound		B-11.1	B-19	B-10.7	B-17.5
Northbound		B-11.4	A-9.7	B-12.2	B-13
Southbound		A-8.8	A-9.7	B-11.2	B-16.9
Main Street & Second Street	Unsignalized	-	-	-	-
Eastbound		A-9.9	C-17.5	B-10.4	D-27.3
Main Street & Third Street	Signalized	A (8.2 sec/veh)	B (12.6 sec/veh)	A (9.1 sec/veh)	B (14 sec/veh)
Eastbound		B-17.1	B-12.5	B-15.8	B-11.5
Westbound		C-22.3	B-19.9	C-21.6	C-20.7
Northbound		A-4	A-7.8	A-5.2	A-9.1
Southbound		A-6.2	B-10.2	A-7.6	B-12.8
Phillips Street & First Street	Unsignalized	-	-	-	-
Northbound		B-12.2	B-13.9	C-15.2	C-18.6

The base year (2016) analysis is based on data collected at stations in the study area. Design year (2040) volumes reflect a 1% annual growth rate, which is in line with the Metrolina Regional Travel Demand Model growth rate. A letter "grade" shown below of A-D represents a functional intersection. This analysis reveals that, given the projected traffic growth rate, all intersections in the study area currently and will perform within traffic engineering standards. This analysis assumes no major changes to growth rates or significant changes to the transportation system. Table 2 summarizes the existing and projected levels of service for each signalized intersection.

### Crash Data and Analysis

### TABLE 3

### 2011-2016 Total Crashes

North Main Street	66
West 1st Street	42
3rd Street / McAdenville	50

Table 3 and Figure 6 shows the total number and type of vehicle crashes reported by state and local law enforcement agencies between July 2011 and June 2016. Crashes are heaviest on North Main Street but fairly wide-spread among all of the major roadways in the study area.

Dominant crash types (left turns, rear end, and running off the road) along North Main Street is likely linked to geometric issues, such as the sharp bend in the road near Rogosin Street, and speeding. The strong pattern of left turn, rear end, and fixed object crashes on West 1<sup>st</sup> Street (NC 7) may be related to the number of utility poles located back of curb and through traffic reacting to an incident on I-85. The high percentage of left turn and angle crashes along 3<sup>rd</sup> Street/McAdenville Road is influenced by the location and frequency of driveways.

The last reported crash on the Norfolk Southern rail line across South Main Street was in 2011, and the cause was due to the vehicle driving around the gates. The crossing is controlled by two gates, and the nearest highway traffic signals are not connected to the rail gate signal system.





FIGURE 7

The MPO provided the following recommendations for review by the Downtown Lowell Transportation Study:

- 1. Install consistent and prominent signage guiding patrons toward off-street parking lots nearby
- 2. Insert a downtown parking map into utility bills to distribute to residents
- 3. Identify the actual and perceived safety concerns associated with angled parking spaces
- 4. Identify intersection and crossing improvements to address actual and perceived safety concerns of pedestrians in the Downtown

Tables 3 and 4 describe the parking lots and their approximate number of parking spaces marked or estimated. Parking lots also include sections of on-street parking. Estimates, where spaces are not clearly marked, are calculated based on recommended parking stall width and length per parking space type (i.e. angled, parallel). Dimensions are not based on detailed surveys or field measurements, so each should assume a margin of error of +/- 1 foot or number of total spaces per lot. TABLE 5

### TABLE 4

### Lot Descriptions

Lot #	Location	From	То	Direction	Parking Type
7	N Main Street	1st Street	2nd St	NB	Angle (60)
10	N Main Street	1st Street	2nd St	SB	Angle (60)
11a	W 2nd Street	N Church St	N Main St	EB	Off-Street
11b	W 2nd Street	N Church St	N Main St	EB	Angle (60)
12a	East 2nd Street	N Main Street	Mill St	EB	Angle (60)
12b	East 2nd Street	N Main Street	Mill St	EB	Parallel (marked)
14	N Main Street	2nd Street	W 3rd St	SB	Parallel (unmarked)
4	East 1st St	S Main St	Mill St	WB	Parallel (unmarked)

### Parking

In the fall of 2014, the City Manager for Lowell worked with Gaston-Cleveland-Lincoln MPO staff to create a scope of work for the Lowell Downtown Corridor Study. As part of discussions with city staff and officials, the MPO conducted a survey of parking utilization rates in the downtown and interviews with local merchants and patrons. The survey produced an inventory of on-street and off-street, both publicly and privately managed spaces, parking for Downtown visitors (see Figure 7). The results of this survey is included in the MPO's 2015 report to the City of Lowell titled "Lowell Downtown Parking Study Results." The inventory assigned a lot number to each area reserved for parking. The following graphic illustrates the placement and identify of each parking lot near or within the Downtown.

The MPO's report concluded that there is a sufficient volume of parking in the Downtown to meet typical demand. Staff calculated utilization rates based on the number of spaces filled per parking lot during morning, mid-day and afternoon checks. Lots #10 and #11 exceeded 50% utilization during morning and midday hours, but all other lots fell below 20% utilization.

The primary challenges or issues raised by the report included the following:

- Several on-street and off-street areas are unmarked or not prominently signed for parking.
- Patrons expect sufficient availability of parking spaces within 50 feet of the entrance to their Downtown • destination in question.
- Angled parking in the Downtown frequently causes conflicts between longer vehicles parked in those visibility of drivers in adjacent vehicles attempting to back out onto Main Street.
- Pedestrians crossing Main Street at locations other than marked crossings are not visible to through traffic, largely due to the angled on-street parking

xisting On Street Parking inventory and Dimensions in Downtown Lowell						
Equivalent						
Number of Total	Adjacent Thru	Preferred Space	Actual Space	Preferred Back of	Actual Stall	
Parking Spaces	Lane Width (FT)	Length (FT)	Length (FT)	Curb Width (FT)	Width (FT)	Lot #
19	13-14	19	17	10.5	9	7
9	12	19	17	10.5	9	10
5	n/a	n/a	n/a	n/a	n/a	11a
9	14	19	16	10.5	8	11b
14	14-15	19	18	10.5	9	12a
3	14-15	21	20-21	7.5	7-8	12b
7	15	21, marked	167*	7.5	7-8	14
10	11	21, marked	215*	7.5	7	4
76						τοται

						Equivalent
	Actual Stall	Preferred Back of	Actual Space	Preferred Space	Adjacent Thru	Number of Total
Lot #	Width (FT)	Curb Width (FT)	Length (FT)	Length (FT)	Lane Width (FT)	Parking Spaces
7	9	10.5	17	19	13-14	19
10	9	10.5	17	19	12	9
11a	n/a	n/a	n/a	n/a	n/a	5
11b	8	10.5	16	19	14	9
12a	9	10.5	18	19	14-15	14
12b	7-8	7.5	20-21	21	14-15	3
14	7-8	7.5	167*	21, marked	15	7
4	7	7.5	215*	21, marked	11	10
TOTAL						76

\* This length represents the total length of the parking area unmarked.

spaces and trucks passing through along Main Street. Larger vehicles in the angle spaces also block the

### Existing On Street Parking Inventory and Dimensions in Downtown Lowall

### **Bicycle and Pedestrian Transportation**



FIGURE 8

Downtown Transportation Plan Town of Lowell NC

Figure 8 shows where sidewalks are present along the roadways in the study area. One pedestrian crash was reported within the study area between 2007-2013. No bicycle crashes have been reported in the study area, per the most recent NCDOT pedestrian and bicycle crash data reports. Most sidewalks are less than the recommended 5 feet in width, and most intersections include curb ramps inconsistent with the most recent accessibility guidelines. The study area includes no dedicated bicycle facilities such as bike lanes or multi-use pathways. In several locations on the west side of Main Street (north of First Street), a series of steps and hand rails connect the sidewalk to the walkway adjacent to the downtown storefronts.





FIGURES 9: PEDESTRIAN CONDITIONS IN DOWNTOWN LOWELL (Top, Left) – Sidewalk on east side of Main Street: Sidewalk widths vary in downtown Lowell. On the east side of Main Street, furniture and utility poles narrow the pedestrian clear space to less than minimum standard width.

(Middle, Left) – Angled parking on N Main Street: Standard vehicles are longer than the space length provided by angled parking on North Main Street. When parked vehicles extend into the travel lane, larger trucks cannot safely travel this section of Main Street, and visibility of pedestrians crossing Main Street is limited.

(Bottom, Left) - Diagonal crosswalk across N Main Street: A high-visibility crosswalk runs diagonally across North Main Street near 2<sup>nd</sup> Street. The crosswalk also includes an in-street yield sign.

(Bottom, Right) - Curb condition at Main Street and 1<sup>st</sup> Street: Deteriorated curbs and pavement, combined with non-existent or noncompliant curb ramps, at the corner of 1<sup>st</sup> Street and Main Street are significant maintenance and safety concerns for pedestrians. Most curb ramps in the downtown lack sufficient access for disabled pedestrians.



### **Previous Plan Summary**

A limited number of existing transportation plans have significance to downtown Lowell. The current 2040 Gaston-Cleveland-Lincoln Metropolitan Planning Organization (GCLMPO) Comprehensive Transportation Plan (CTP) does not contain any recommendations that directly affect downtown Lowell. However, the MPO's draft CTP (Figure 9) does show improvements and new connections that may impact the downtown. A proposed roadway is shown on the draft CTP map that would increase connectivity between NC 7 west of the downtown to neighborhoods northeast of the downtown and ultimately toward Mt. Holly. Bicycle improvements are shown on draft CTP maps for 3<sup>rd</sup> Street/McAdenville Road, North Main Street, and First Street/NC 7 within the Lowell planning area. MPO staff added that these bicycle improvements were proposed as striped bike lanes on the roadways. Sidewalks are also proposed on draft CTP maps where absent on one side of the road along North Main Street, South Main Street, and 3<sup>rd</sup> Street/McAdenville Road.



FIGURE 10, ZOOM INSET

downtown Lowell's primary gateway.

# Public Input and Goals

On Thursday, October 20, the City of Lowell hosted a public workshop for the downtown transportation study. Participants reviewed a sampling of traffic data and analysis, and were asked to help identify the goals of priority importance. Additional comments received during the workshop expanded or clarified their strongest interests for transportation improvements in downtown Lowell. Figure 10 lists the plans goals, in order or collective priority. Pedestrian safety and aesthetic improvements are primary goals for Lowell. Participants cited need for pedestrian crossing signals, mid-block crosswalks, realigned on-street parking, and improved aesthetics at prominent entrances into the downtown.

Goals	Number of Vote Tallies
Improve pedestrian safety / pedestrian crossing signals	30
Enhance downtown streetscape features	23
Improve major entrances to downtown	20
Extend public transportation service into the downtown	17
Increase availability of public parking	6
Add bicycle lanes to roadways	5
Reduce motor vehicle conflicts	4

The primary goals- to improve pedestrian safety and streetscape aesthetics- suggest physical changes to the downtown environment. Changes may include:

- wider sidewalks
- accessible curb ramps
- shorter pedestrian crossings
- larger generous street trees
- narrowed curb lines (from centerline)
- realigned on-street parking

### Other issues

Truck routes currently follow NC 7 through downtown Lowell, requiring large delivery and freight trucks to travel through the heart of downtown. Travel lane widths are not sufficient for large trucks through downtown, and the number of turns along NC 7 through downtown can impede truck and through-traffic mobility. Many participants at the workshop commented on the need for a more direct truck route, ideally bypassing the core downtown. The Franklin Boulevard considered an extension of McAdenville Road, following west 3<sup>rd</sup> Street and tying into 1<sup>st</sup> Street west of downtown. This alignment may provide truck route options and relief for some peak hour traffic through the downtown.



### FIGURE 11

*Left* - Freight truck following NC 7 route. Large trucks frequently run over curbs and are challenged to navigate through downtown.

*Right* - Vegetation along Main Street are small evergreen (holly) trees. These trees do not provide sufficient vertical clearance for pedestrians and little canopy cover.

# Recommendations

Forecasted traffic conditions and limited access for cycling and walking suggest options for the future streets network in downtown Lowell. The following were presented to the Lowell City Council on May 8, 2017. The recommendations were organized by short, mid and long-term improvements. Short-term improvements are most likely within a 2 to 5-year horizon. Mid-term improvements are more targeted for implementation between 5 and 10 years. Long-term improvements are more likely to be constructed in 10 to 20 years.

### Short Term Improvements: Restriping within Existing Pavement Width



Intersection or Roadway Marking Changes along NC 7

- Stripe 5-foot wide edge along E 3<sup>rd</sup> Street/ McAdenville Road east of N Main Street to I-85 approaches
- 2. N Main Street at 3<sup>rd</sup> Street safety improvements
- Move crosswalk to 2<sup>nd</sup> Street; reconfigure on-street parking to parallel along N Main Street
- 4. 1<sup>st</sup> Street at Main Street safety improvements

FIGURE 12

NCDOT has plans to resurface NC 7 between the I-85 Exit 23 and Ranlo in 2017 or 2018. Short term improvements in downtown Lowell look to partner with NCDOT to restripe NC 7 within the downtown study area. See photos in Figure 13 for examples of the short term recommendations.

East 3<sup>rd</sup> Street/McAdenville Road can be restriped (#1, Figure 12) to include an edgeline between the I-85 approach and the turn lanes approaching North Main Street. This sectoin of the two-lane undivided roadway has very wide travel lanes, and adding an edgeline may encourage traffic to slow down entering the downtown while also offering a space for cyclists outside the travel lane. Traffic forecasts supporting this recommendation are further explained in the NCDOT Memo: "Proposed changes to NC 7 in Downtown Lowell" located in the appendix.

Along Main Street between 3<sup>rd</sup> Street and 1<sup>st</sup> Street (#2 and #4, Figure 12), angled parking is proposed to be converted to parallel parking. This change will help correct the current problem where longer vehicles encroach into the travel lanes. The conversion will also offer future space to the City to widen current sidewalks or streetscape buffers. At both the intersection of 3<sup>rd</sup> Street and 1<sup>st</sup> Street, a limited number of turn lanes are repurposed for space for curb line extensions. In the short term, these curb line extensions are only painted lines on the pavement shortening the crossing distance for pedestrians and aligning with new parallel parking spaces. In the longer term, the City may construct raised curb extensions ("bulbouts") to match the pavement markings.

Currently, a crosswalk connects diagonally across North Main Street near 2<sup>nd</sup> Street (#3, Figure 12). The skewed geometry and placement of this crosswalk is problematic for pedestrians. The crosswalk should be aligned at a perpendicular angle with North Main Street and should be closer to 1<sup>st</sup> Street. The City should consult with NCDOT to identify the proper location, given spacing to the signalized intersection at 1<sup>st</sup> Street.



FIGURE 13: SHOULDER STRIPING (LEFT), MID-BLOCK CROSSWALK (CENTER), AND CURB LINE EXTENSION MARKING (RIGHT)



### Intersection of 3<sup>rd</sup> Street and North Main Street

Based on forecasted levels of service at this intersection and current turn lane configurations, the City may consider removing dedicated left and right turn lanes from the northbound approaches of North Main Street. By removing these turn lanes, the City may consider striping in a tighter curb lines at the intersection. These curb line extensions would be replaced in the future with hardscape raised curbing ("bulb outs"). Figures 14 illustrates proposed changes to turn lane configurations at the intersection.



### FIGURES 14

### North Main Between 1<sup>st</sup> and 2<sup>nd</sup> Streets



On street parking along the block of North Main Street between 2<sup>nd</sup> and 1<sup>st</sup> Streets is front-in angled on both sides of the street currently. The angle is closest to 60 degrees, and the space lengths are not consistent with best practices for parking space design. Within this block of North Main Street, the City should consider converting the parking to parallel on both sides. This conversion will result in a net loss of parking, but proposals for side streets will accommodate additional parking that will more than make up for the loss of parking on North Main Street.

The City should also consider moving the diagonal crosswalk on North Main Street from the intersection of 2<sup>nd</sup> Street to a mid-block location between 1<sup>st</sup> and 2<sup>nd</sup> Street. The new crosswalk should incorporate highvisibility crosswalk markings (continental or ladder-style) and be designed perpendicular to North Main Street. The crosswalk should be placed at least 150 feet from the intersection of 1<sup>st</sup> Street and Main Street.

Existing Angled (60 Degree) Parking Spaces: 28 **Proposed Parallel Parking Spaces: 11** 



FIGURE 15: CROSSWALK PLACEMENT ON NORTH MAIN STREET

FIGURE 14: VARIOUS ON STREET PARKING CONFIGURATIONS

### Intersection of 1<sup>st</sup> Street and North Main Street

Based on forecasted levels of service at this intersection and current turn lane configurations, the City may consider removing several turn lanes and through lanes at 1<sup>st</sup> Street and Main Street. The changes reflected in Figures 16 would result in consolidated through and turn lanes on the southbound approach of North Main Street and the westbound approach of 1<sup>st</sup> Street. The changes would also drop a dedicated right turn lane on the northbound approach of South Main Street. Other changes would eliminate the right-most, westbound travel lane of 1<sup>st</sup> street west of Main Street, and the right-most, southbound travel lane on South Main Street. All traffic patterns would return to their current conditions at the next closest intersection (Church Street, and Mill Street). By removing these turn and through lanes, the City may consider striping in a tighter edge lines at the intersection of 1<sup>st</sup> and Main Streets. These edge line extensions would be replaced in the future with hardscape raised curbing ("bulb outs").





FIGURES 16

# Mid-Term Improvements: Downtown Roadway and Streetscape Improvements

Downtown Lowell mostly consists of the commercial uses facing Main Street between 1<sup>st</sup> and 2<sup>nd</sup> Street, as well as the commercial and civic uses facing 1<sup>st</sup> Street between Church and Mill Streets. Large church properties and residential neighborhoods surround these blocks. To increase retail traffic to the downtown and improve parking and mobility, this study recommends that the Downtown be viewed as a 4-block area centered on the intersection of 2<sup>nd</sup> Street and North Main (see Figure 18). This expanded view of Downtown would help disperse traffic from the central spine of the NC 7 route, provide multimodal options for residents and visitors, and support more economic development on underutilized properties. This concept also proposes enhanced treatments at the entry points or gateways into the downtown area. These nodes would include decorative hardscape treatments, colorful landscaping and wayfinding signage.

The roads that comprise NC 7 in Downtown Lowell (East 3<sup>rd</sup> Street, North Main Street, and West 1<sup>st</sup> Street) are wide enough to support high volumes of traffic. However, adjacent and cross streets are not built to carry moderate volumes of traffic, nor do they include multimodal accommodations (sidewalks, bike lanes, etc.). To allow for the distribution of traffic, these side streets should be improved (widened). Each street has been coded to a street type (Figure 18).

Additionally, each street type is further described by a series of illustrative cross sections in Figures 22-31. Each figure describes the transportation elements recommended per street type and segment. An example cross section is taken where the red line is shown on each sketch plan. The cross section describes the recommended dimensions (in feet) for each transportation or streetscape element.



FIGURE 17: STREET TYPE RECOMMENDATIONS FOR DOWNTOWN LOWELL

- West 1st Street Approach two drive lanes each direction with sidewalks
- South Main Approach two drive lanes, turn lane, parallel parking one side and sidewalks
- North Main Street, past 3<sup>rd</sup> Street two drive lanes with sidewalks
- McAdenville Approach two drive lanes, bike lanes and sidewalks
- 1<sup>st</sup> Street two drive lanes, parallel parking each side and sidewalks; variation west of Main
- Main Street two drive lanes, parallel parking each side and sidewalks, with grade change
- 2nd Street two drive lanes, diagonal parking one side and sidewalks
- Church and Mill Streets two drive lanes with sharrows and sidewalks
- 3<sup>rd</sup> and McAdenville two drive lanes, parallel parking one side, WB left turn lane, and sidewalks
- Gateway
- Important Node





Figure 18 illustrates the overall concept for streetscape and development for Downtown Lowell. The







FIGURE 27 East and West 1<sup>st</sup> Street (80' ROW) • 12' drive lane each direction • 10' parallel parking each side • 11' sidewalk • 6.5' tree planting zone





2<sup>nd</sup> Street (50' ROW)

- 10' drive lane each direction
- 18' diagonal parking one side6' sidewalk







### Long Term Improvements



Development plans and a proposed extension of Lineberger Road toward 1<sup>st</sup> Street west of Downtown Lowell prompted a study for longer term connectivity improvements. Figure 32 shows where Lineberger Road may extend toward NC 7 west of Downtown Lowell in the future. Large truck traffic on Main Street in Downtown Lowell also suggests the need for an alternative alignment for NC 7. An extension of 3<sup>rd</sup> Street toward the west would allow for a more direct and alternative route for truck and through-traffic along NC 7.

Figures 33 and 34 show two conceptual alignments for the extension of 3<sup>rd</sup> Street. Both alignments are met with multiple conflicts with utility corridors and structures. Both alignments contend with challenging topography between Poplar and Ash Streets. Option A (Figure 33) shows more connections to local streets such as Ash Street and Potts Street. Option A also proposes a roundabout at the intersection of the extension and NC 7. This roundabout may be able to tie in with the intersection of Phillips Street and provide more mobility to north-south traffic, especially traffic returning from Holbrook Middle School on Phillips Street. The roundabout on NC 7 may also provide opportunity for additional gateway enhancements for eastbound traffic into the Downtown. The City of Lowell may be able to partner with land developers to construct the more connected and lower speed alignment shown in Option A.

Option B (Figure 34) shows a more direct connection between the 3<sup>rd</sup> Street extension to Ash, Birch or Clay Streets. This alignment may allow for traffic to flow at higher speeds west from Downtown, but will require that connecting streets be improved or widened to accommodate higher volume and higher speed traffic. Option B represents a more traditional bypass alignment, more likely to be funded and built by NCDOT. Neither Option A nor Option B are likely to score well under NCDOT's prioritization methodology until traffic volumes and congestion along NC 7 increase much higher than regional projections.

FIGURE 32





FIGURE 33



### Implementation

Downtown Lowell has several options for improving local mobility, multimodal access and streetscape aesthetics. This plan's short-term recommendations take advantage of NCDOT resurfacing and maintenance activities along NC 7. The pavement markings would be temporary measures to slow traffic, improve pedestrian visibility, and reduce conflicts between parked vehicles and through traffic on NC 7. The City may be asked to produce a formal striping plan to designate the desired placement of pavement markings, and NCDOT may ask the City to provide local funding toward the "betterment" costs of additional pavement marking materials.

The mid-term recommendations would be an important second step, building upon the temporary roadway markings. The City should consider working with state agencies offering design and construction grants for pedestrian and streetscape improvements. Many of these recommended improvements would be eligible within the NCDOT prioritization methodology used to select bicycle and pedestrian projects. The City should work closely with the Gaston-Cleveland-Lincoln Metropolitan Planning Organization (MPO) to submit pedestrian improvement projects to NCDOT. The City may also consider funding opportunities offered by the NC Department of Commerce for downtown streetscape improvements.

In the long-term, the City should work with the MPO to monitor traffic patterns and growth along NC 7. If volumes increase substantially, the City should consider conducting an updated traffic study along the corridor. If forecasts suggest that NC 7 will see consistent congestion in the future, then the City may consider adding the 3<sup>rd</sup> Street Extension to the region's Comprehensive Transportation Plan (CTP). The City may also study conceptual alignments for the 3<sup>rd</sup> Street Extension for the region's comprehensive to construct segments of the 3<sup>rd</sup> Street extension to connect neighborhoods and offer convenient access to NC 7.

Implementation Recommendation	Lead Agency
Roadway Restriping – NC 7 Resurfacing	NCDOT (with support from the City of Lowell)
Streetscape Improvements	City of Lowell
3 <sup>rd</sup> Street Extension	NCDOT
Lowell Bicycle and Pedestrian Master Plan	City of Lowell

In addition to these recommendations, the City should consider developing a comprehensive bicycle and pedestrian plan. The bicycle and pedestrian improvements identified for streets in the Downtown should be studied further within a broader planning context and consider how the Downtown would connect to local destinations such as Poston Park, schools, and the City of McAdenville. The City of Lowell should consider applying for the NCDOT Bicycle and Pedestrian Planning Grant program, or the City may work with the MPO to apply for Planning funds to create the plan.