Scoring Formula for New Jersey's Main Streets

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Introduction

This study supplements *Flexible Design of New Jersey's Main Streets*, a guidebook written for the New Jersey Department of Transportation (NJDOT) by the Voorhees Transportation Policy Institute (VTPI) at Rutgers, the State University of New Jersey. The guidebook recommended that state highways designated as "main streets" conform to special design standards and policies under a new Main Street Overlay Program. NJDOT's response to the guidebook has been positive, and many of its recommendations are being implemented. But there is continued uncertainty at NJDOT as to exactly which state highways should be accorded this special status. To help answer this question, main street stakeholders were asked to rate different New Jersey main streets in a visual preference survey. This report describes the process, resulting scoring formula, and ways in which the scoring formula can be used by NJDOT.

For the earlier guidebook, VTPI developed a *Main Street Visual Preference Survey* and distributed the survey to members of the project's Technical Review Committee (TRC). The survey consisted of 50 centerline images of diverse roadways running through villages, towns, cities, and suburbs throughout the United States. First, the TRC rated each scene on a 1 to 7 scale, with higher numbers assigned to better main streets. The study team then performed a content analysis on each scene to quantify the attributes of the streets and their contexts. Finally, average scores assigned to the scenes were modeled in terms of these attributes using multiple regression analysis, with the attributes serving as independent variables. Five attributes proved statistically significant in our "best-fit" regression equation: sidewalk width, percentage of frontage with active uses, percentage of frontage with street trees, building setback from the street, and number of travel lanes. All had the expected relationships to main street quality—the first four variables were positively related to average scores, the fifth was negatively related.

The present study differs from that done for *Flexible Design of New Jersey's Main Streets* in four respects. First, roadways were depicted in a more realistic manner, using both still photography and video clips. Second, survey participants were selected to represent a broad cross section of main street stakeholders, as opposed to a small collection of national experts. Third, only roadways from New Jersey were used. Finally, a refined set of main street variables was tested for relationships to main street scores

Background on Visual Preference Surveys

Visual preference surveys are used to determine what physical features of the built or natural environment are valued by citizens and community leaders. By using visual media, these surveys help to illustrate alternatives in ways that words, maps, and other media cannot. They are ideal for visioning projects, design charrettes, and other physical planning activities with heavy public involvement.

Visual preference surveys have gained national prominence as a tool of the New Urbanism movement.[1] Visual preference surveys performed by New Urbanists have shown that the American public, by a wide margin, prefers traditional small town and village scenes to contemporary, sprawling suburban scenes. This fact has been used to affect changes in local development codes and development practices.

Visual preference surveys have also been used by proponents of transit-oriented development (TOD). A 1998 survey by Cervero and Bosselmann found that residents are willing to accept higher densities around transit stops in return for the right mix of public amenities such as parks.[2]

Nationally, visual preference surveys are being applied to many urban design and planning projects. *Envision Utah* incorporated visual preference surveys into a series of community workshops to decide on future development patterns for the Greater Wasatch region.[3] Visual preference surveys were used in the 2002 *Livable Delaware Summit,*[4] and to redefine a vision for the city of Binghamton, NY.[5] Smaller cities such as LaCrosse, Wisconsin and Metuchen, New Jersey have used visual preference surveys to guide redevelopment, and have even written design codes based on expressed preferences.[6]

Transportation professionals are just beginning to apply visual preference survey methods to transportation planning projects.[7] The San Antonio, Texas Metropolitan Transit authority used a visual preference survey to create design standards for streets, bicycle paths and pedestrian amenities.[8] A study for Florida DOT used a visual preference survey to prioritize features of bus stops.[9] Most highly valued features were: a bus shelter; trees along the street leading to the stop; a vertical curb at the stop; the setback of the stop from the street edge; and a continuous sidewalk leading to the stop.

Most recently, a FTA-funded study in Ann Arbor, Michigan is using visual preference survey methodology to determine bus riders' perceptions of security with regard to the design of buses and bus stops.[10] The project intends to "improve the riding experience of bus riders, attract non-bus riders to the bus, and to positively alter the attitude of the non-bus riders about public transportation."[11]

Before they were discovered by urban planners and designers, visual preference surveys (by other names) were used by forest managers, environmental psychologists, and landscape architects. Survey methods were first applied to wild lands, later to urban parks and urban landscapes, and still later to specific urban design elements such as signage and parking.[12] They are a well-established research tool, and have a well-developed set of guiding principles. We followed these principles carefully throughout the present study.

1) Visual preference surveys usually have from 50-100 subjects evaluating different scenes. Groups can be as small as 15 and still provide meaningful results.[13] Our sample of respondents numbered 59, and included transportation professionals, directors of Main Street Programs and Special Improvement Districts, downtown advocates, downtown business owners, representatives of local governments, architects, engineers, and consultants.

2) Viewers are typically shown photographs of scenes or computer generated graphical images in flat or three-dimensional view. Normally images are in color for added realism. In recent years, designers have taken visual representations to new heights with “morphing” techniques, where three-dimensional computer models of existing scenes are altered to generate future scenarios.[14] We chose to use color photographs and video clips for our survey because they were easily produced and captured the relevant features of main streets and their immediate environments.

3) Viewing time of each scene ranges up to half a minute or more. A longer viewing time may help viewers pick out why they like or dislike a scene, but does not seem to change the initial response to a scene.[15] We allowed 45 seconds for viewers to score each main street scene, as well as write comments to explain their scores.

4) A Likert-scale is the most common basis for assessing viewer preference. The most common range is 1-5, though the best-known practitioner of visual preference methodology, Anton Nelessen, a New Urbanist designer, prefers a broader scale, –10 to +10.[16] We used a 1-7 scale. This offers sufficient differentiation without asking viewers to distinguish among slight gradations; it also avoids negative numbers, which are less familiar to lay viewers than are positive numbers.

5) One common method of analysis is to compare average ratings for scenes of different types, for example, traditional vs. contemporary developments. Though simple to carry out, this method also produces the least useful information. Without further analysis, one cannot know whether the differences in average ratings are significant in a statistical sense. Furthermore, one cannot tell which features of scenes are responsible for high or low ratings. More sophisticated visual preference surveys use analysis of variance to test for significant difference across scenes and/or use multiple regression analysis to explain differences in terms of scene content. The structure of our survey made it advantageous to use a hierarchical linear modeling technique known as cross-classified random effects modeling (as described below).

Methodology and Results

Site Selection

NJDOT assisted in site selection by nominating 83 “main streets” for inclusion in the study. These were of four types:

1) Classic main streets such as Nassau Street in Princeton and Washington Street in Hoboken.
2) Urban streets recently reconstructed to be more main street-like, such as Springfield Avenue in Maplewood and Maple Avenue in Red Bank.
3) State highways that local authorities would like to make more main street-like, such as Route 202 in Bernardsville and Ocean Boulevard in Long Branch.
4) Controversial roadways that have pitted NJDOT against local interests, such as Brunswick Avenue in Lawrenceville and Broadway in Salem.

Of these, 50 were chosen for the visual preference survey. Two streets were chosen from each of New Jersey’s 21 counties, with the balance coming from more urbanized counties. Most lie on state or county routes. Selection was driven by the desire for diverse roadway cross sections and diverse roadway edge conditions. Streets currently undergoing construction, and those that offered no safe place along the centerline from which to take photographs, were excluded from the sample.

Video and Photography

The videos and photographs were taken outside of the rush hour, generally between 10 a.m. and 4 p.m., on clear days. This was done to keep traffic volumes low enough so edge conditions were discernable, and to control for weather as an extraneous influence on main street scores.

All video clips were shot from the right side of the street between the travel lane and shoulder/parking lane. They were all taken as stationary (as opposed to panning) shots, and taken at a wide angle so as to include the street, sidewalks, and buildings. All still photographs were taken from the centerline or median. Three telephoto shots of 105 mm were merged into one panoramic view. Each image was cropped to achieve a consistent scale. This ensured that differences in viewer perspective or photographic technique would not influence the ratings.

Descriptive Data

Additional data were collected to supplement the panoramic still photographs and video clips. For each roadway, functional class, 2002 average daily traffic volume, access level, desirable typical section, truck route, state plan designation, and site maps all came from NJDOT sources. Other information was gathered in the field, specifically land use, posted speed limit, presence of bus stops, and cross sectional dimensions.

Site Sheets

Site sheets were created to give readers a quick snapshot view of each street (see Appendix). In addition to descriptive data, each sheet includes a panoramic photograph, street cross section, and map showing the network context of the street. All cross sections and maps are shown at the same scale to invite easy comparison. The cross sections graphically illustrate the roadway from sidewalk to sidewalk, including tree/utility strips, parking lanes, shoulders, travel lanes, and median. Not shown is what lies beyond the sidewalk. This information is best gleaned from the panoramic photographs.

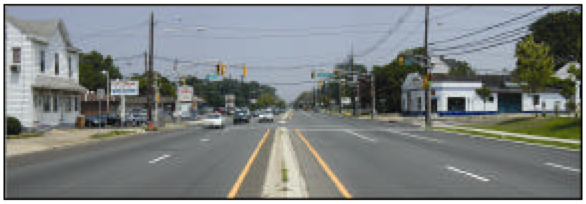
Pilot Test and Survey

A pilot test of the survey was conducted on October 23, 2002 at NJDOT headquarters with 10 planners and engineers. Given feedback from the pilot test, it was decided to show more examples of street scenes before asking participants to begin scoring scenes. It was also decided to devote less time to each scene in the subsequent survey.

The visual preference survey was conducted on October 29, 2002 at the Quarterly Main Street New Jersey/NJDCA Downtown Revitalization Institute. The conference subject was “Promoting Downtown.” More information about this group can be found at www.state.nj.us/dca/dhcr/msnj.htm. Included in this group were 49 representatives of urban, suburban, and rural communities throughout the state. Among them were directors of Main Street Programs and Special Improvement Districts, downtown advocates, downtown business owners, representatives of local governments, architects, engineers, and consultants. This group provided a broad cross section of people interested in promoting main streets in New Jersey.

The survey was administered as a PowerPoint presentation. The survey began with a short instructional session, including photographs of the lowest and highest rated main streets from the earlier visual preference survey of national experts. The idea was to show the range of possibilities from best to worst, so that participants would have a common basis for subsequent ratings. In the survey itself, each street was depicted by a panoramic photograph of the streetscape and a short video clip giving an impression of traffic volumes and pedestrian activity. The survey in progress is shown in Figure 1. Examples of low and high rated scenes, with average scores, appear in Figures 2 and 3.

Figure 1: Visual Preference Survey Session


Lawrenceville = 2.32

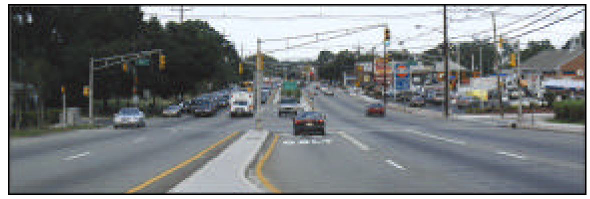

Clifton = 1.89

Figure 2: Low-rated Street Scenes


Hoboken = 5.63

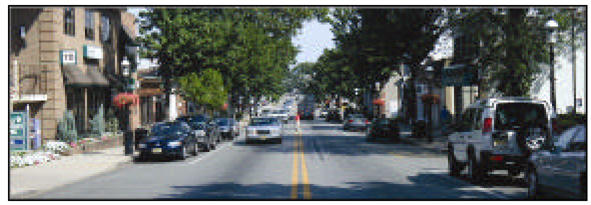

Madison = 5.31

Figure 3: High-rated Street Scenes

Content Analysis of Scenes

The photographs and video clips used in the survey were subsequently analyzed for content. Features of main streets and their immediate environments were measured for use as explanatory variables. Analysts worked together in an informal Delphi-like process to assign values to each variable, and discussed and debated until a consensus was reached. Twenty-three variables were measured from the panoramic photographs, and an additional two variables came from the video clips. The choice of variables was guided by the earlier survey of experts, and by the literatures on street and urban design.

Table 1 lists the variables that were measured and tested for their explanatory power.

From Panoramic Photographs	From Video Clips
Proportion of visible buildings that are commercial	Number of pedestrians visible
Proportion of visible buildings that are historic	Number of moving vehicles visible
Proportion of street frontage with dead space	
Proportion of street frontage with parked cars	
Proportion of street frontage with tree canopy	
Number of travel lanes	
Average travel lane width, in feet	
Average shoulder width, in feet	
Average median width, in feet	
Average sidewalk width, in feet	
Total curb-to-curb width, in feet	
Total back-of-sidewalk to back-of-sidewalk width, in feet	
Posted speed limit, mph	
Marked crosswalk visible, 1=yes 0=no	
Curb extensions visible, 1=yes, 0=no	
Textured pavement visible, 1=yes, 0=no	
Average setback from curb to visible buildings, in feet	
Average building height, in feet (10 ft per story)	
Ratio of building height to street width plus building setbacks	
Uniform building heights, 1=yes, 0=no	

Pedestrian-scaled streetlights, 1=yes, 0=no
Underground utilities, 1=yes, 0=no
How well street pavement is maintained, 1-5 scale

Table 1: Variables Measured and Tested For Explanatory Power

Statistical Analysis of Survey Responses

The outcome variable in this study is the main street score assigned by an individual viewer to an individual street scene. We tested for differences in scores assigned by the two groups, and having found none, pooled responses from the pilot test and survey to increase the sample size.

If all 50 street scenes had been scored by all 59 viewers, our sample would have consisted of 2,950 scores; the actual sample size is a bit smaller, 2,898, due to missing values.

There are several sources of variation in main street scores within this sample. Scores will vary from scene to scene due to different qualities of the street itself and its edge. Some streets in our sample are traditional shopping streets, while others are more like commercial strips or residential arterials. The former would be expected to garner higher scores than the latter. Scores will vary from viewer to viewer due to differences in judgment. Some viewers will be more generous in their grading than others. Scores will vary due to unique interactions between scenes and viewers. A particular scene may evoke a particularly positive or negative reaction from a particular viewer. We view such unique reactions as measurement errors.

When an outcome varies systematically in two dimensions, and random effects are present, the resulting data structure is best represented by a *cross-classified random effects model*. For an introduction to this class of models, readers are referred to Chapter 12 in Raudenbush and Bryk's *Hierarchical Linear Models: Applications and Data Analysis Methods*.[17] The two dimensions in this study are the viewers and the scenes. The more interesting source of variation in scores is that associated with scenes. Indeed, the purpose of this study is to identify the characteristics of scenes that give rise to higher or lower scores. In statistical parlance, the "scene effect" gives rise to "scene variance." While not of much interest, variation also occurs across viewers and must be accounted for. Again in statistical parlance, the "viewer effect" gives rise to "viewer variance." The unique reactions of individual viewers, and the random variations in their scoring across scenes, produce "measurement error variance."

In order to bring into focus the interesting variation, that is the variation across street scenes, it helps statistically to separate the scene variance from viewer variance and measurement error variance. Doing so, we are able to eliminate viewer effects when evaluating the explanatory power of predictors of street scene scores. If we simply used the average scores for scenes as the outcome variable, and the characteristics of scenes as explanatory variables, the effect of scene variance might be confounded by the effect of viewer variance.

Our analysis began by partitioning the total variance in main street scores among the three sources of variation, scenes, viewers, and measurement errors. The model consisted of two parts:

actual score = predicted score + measurement error

where the actual score is the sum of the predicted score for a given scene by a given viewer plus the measurement error; and

predicted score = constant + viewer random effect + scene random effect

where the predicted score is just the sum of a constant plus a viewer random effect and a scene random effect.

These equations were estimated using HLM 5 software, a statistical package developed by Raudenbush, Bryk, Cheong, and Congdon. For this simple model, the measurement error variance is 1.15, the viewer variance is 0.30, and the scene variance is 1.10. The total variance is thus split in the following proportions: 45 percent measurement error variance, 12 percent viewer variance, and 43 percent scene variance. As we might expect, the variance associated with scenes is greater than the variance associated with viewers.

A set of additional models was estimated in order to reduce the unexplained variance in main street scores. These models included characteristics of viewers and scenes:

actual score = predicted score + measurement error

exactly as above; and

predicted score = constant + viewer random effect + scene random effect + a**viewer variables*** **+ b****scene variables***

where the viewer random effect is the portion of the viewer effect left unexplained by viewer characteristics, and the scene random effect is the portion of the scene effect left unexplained by scene characteristics. *Viewer variables* is the vector of relevant viewer characteristics, a is the vector of associated coefficients, *scene variables* is the vector of relevant scene characteristics, and b is the vector of associated coefficients. These variables capture the "fixed effects" of viewers and scenes on main street scores.

Many combinations of viewer and scene variables were tested. The only available variables characterizing viewers—gender and affiliation (DOT or other)—proved to have no explanatory power. That is to say, neither variable was significant at the conventional 0.05 probability level. Apparently women and men, DOT employees and others, react similarly to street scenes.

By contrast, many of the variables characterizing scenes proved significant individually and in combination with each other. The combination of variables which reduced the unexplained variance of scores to the greatest degree, and for which all variables had the expected signs and were significant at conventional levels, is presented in Table 2. This pair of equations left the measurement error variance unchanged at 1.15, the viewer variance unchanged at 0.30, but reduced the unexplained scene variance from 1.10 to 0.11.

	Coefficient	t-ratio	p
Constant	1.83	4.12	< 0.001
Proportion of visible buildings that are commercial	0.492	2.76	0.006
Proportion of street frontage with dead space	-0.970	-3.19	0.002
Proportion of street frontage with parked cars	1.053	4.97	< 0.001
Proportion of street frontage with tree canopy	0.855	2.81	0.005
Number of travel lanes	-0.199	-2.29	0.022
Average sidewalk width	0.0483	2.94	0.004
Curb extensions visible	0.509	2.24	0.025
Underground utilities	0.480	3.17	0.002
Quality of pavement maintenance	0.299	3.43	0.001

Table 2: Scene Characteristics with Significant Effects on Main Street Scores

Scoring Formula

The best-fit equation in Table 2 has both pluses and minuses as a main street scoring formula. On the plus side, all variables in the equation have face validity, meaning that they have plausible relationships to the quality of main streets. Collectively, they explain 90 percent of the variation across scenes, and 39 percent of the overall variation in slide scores (including variation across viewers and measurement errors). All variables in the equation have statistically significant influences on main street scores, holding the other variables constant.

On the minus side, the best-fit equation has not been validated and cannot be within the current study design. There is no opportunity to select a new set of scenes and a new group of viewers, and thereby to replicate these results. Moreover, many important characteristics of state highways such as functional classification, daily traffic volume, and location within a designated center under the New Jersey State Plan are not accounted in the best-fit equation and cannot be through the medium of a visual preference survey.

Included Variables

The variables in the best-fit equation are of three types: context variables, which represent the land use context of roadways and most clearly distinguish main streets from other roadways; facility design variables, which NJDOT can control and use at the margin to make state highways more main street-like; and control variables, which were included in the analysis to control for aesthetic influences on main street scores. The study team suggests that the control variables, underground utilities and quality of pavement maintenance, be excluded from the main street scoring formula. They are not integral to the concept of main streets. Also, the constant term, 1.83, need not be included in the scoring formula as it is an artifact of the seven point Likert-scale used in the survey; a true zero does not exist in this subjective rating scheme and any threshold score used to designate main streets can adjust for the constant.

Without the constant and purely aesthetic variables, the scoring formula takes the form:

Main Street Score =
+ 0.492 * _proportion of buildings that house commercial uses_
– 0.970 * _proportion of street frontage made up of dead space_
+ 1.053 * _proportion of street frontage occupied by parked cars_
+ 0.855 * _proportion of street frontage covered by tree canopy_
– 0.199 * _number of travel lanes_
+ 0.0483 * _average sidewalk width_
+ 0.509 * _curb extensions present_

Equation 1: Main Street Scoring Formula

The included variables are:

- *proportion of buildings that house commercial uses* – This is a context variable. In many viewers' minds, only shopping streets qualify as main streets. These viewers gave streets serving residential uses relatively low scores. However, other viewers scored residential streets as highly as commercial streets. *Flexible Design of New Jersey's Main Streets* defines main streets broadly to include residential approaches to downtown. Residential streets were included in the sample of main streets rated by viewers. So, while the scoring formula gives priority to commercial streets, the proportion of commercial buildings is only one factor among many in the formula.

- *proportion of street frontage made up of dead spaces* – This is a context variable. Dead spaces detract from the liveliness, walkability, and aesthetics of main streets. Counted as dead spaces in the content analysis of street scenes were vacant lots, public parking lots, private parking lots separating commercial buildings from the street, driveways interrupting the continuity of street frontage, and blank walls. The higher the proportion of dead space in our sample of street scenes, the lower the main street score.

- *proportion of street frontage with parked cars at curbside* – This is both a context variable and a facility design variable. It is a context variable because on-street parking spaces are filled only if there are activity generating uses nearby. It is a facility design variable because DOT may or may not devote space within its right-of-way to this particular use. Curbside parked cars serve as a buffer between the sidewalk and street, and they slow traffic by narrowing the traveled way and creating "side friction" as cars pull in and out. This variable has the strongest influence on main street scores of those tested. The higher the proportion of parked cars, the higher the main street score.

- *proportion of street frontage covered by tree canopy* – This is both a facility design variable and an aesthetic variable. It is a facility design variable because street trees are located within the right-of-way and may or may not be provided by

DOT. It is an aesthetic variable because street trees add color, a sense of enclosure, a degree of complexity, and other valued urban design features to streetscapes. Given the emphasis on canopy in the variable definition, mature shade trees will add more value than younger shade trees or mature trees of other types. The higher the proportion of street frontage with tree canopy, the higher the main street score.

- *number of travel lanes* – This is a facility design variable. Addition of travel lanes beyond the basic two is associated with higher speeds, more traffic, longer crossing distances for pedestrians, and more asphalt (an unaesthetic element). The association between number of travel lanes and main street scores is negative but relatively weak.

- *average sidewalk width* – This is a facility design variable. A few of the roadways in our sample lacked sidewalks altogether, and many had sidewalks of minimum width. Wider sidewalks are associated with a more extensive public realm and heightened pedestrian activity, essential qualities of great main streets. The wider the sidewalks, the higher the main street score.

- *curb extensions visible* – This is a facility design variable. Curb extensions provide space for plantings and street furniture, shorten crossing distances for pedestrians, make pedestrians more visible as they wait to cross, and may calm traffic. Only two of the scenes in the visual preference survey feature curb extensions, perhaps because curb extensions anywhere other than at intersections reduce the amount of curbside parking, another valued main street characteristic. Controlling for other variables, the presence of curb extensions increases the main street score.

Omitted Variables

After controlling for the variables in the scoring formula, the remaining variables in Table 1 proved insignificant. Many had the expected signs but fell below the conventional 0.05 significance level. These included: proportion of visible buildings that are historic (+), average travel lane width (-), average shoulder width (-), average median width (+), total curb-to-curb width (-), posted speed limit (-), marked crosswalk visible (+), textured pavement visible (+), uniform building heights (+), pedestrian-scaled street lights (+), and number of moving vehicles visible (-).

Certain context variables emphasized in the urban design literature did not perform as expected. Average building setback and ratio of building height to street width plus building setbacks are believed to affect the perception of streets as positive spaces. The greater the building setback and the lower the height of buildings relative to the distance between them, the less well-defined street space becomes, the less natural surveillance of street activity occurs, and the more isolated pedestrians feel. Yet, average building setback and ratio of building height to street width plus building setbacks proved insignificant and actually had the "wrong" signs in various model runs, positive and negative signs, respectively. It is some consolation that one significant variable, the proportion of street frontage made up of dead spaces, accounts for parking in front of buildings and hence, to a degree, accounts for building setbacks.

Recommendations

The study team recommends that NJDOT use the scoring formula shown in Equation 1 as one factor in the designation of main streets. A sufficient score and location within a designated Center under the State Development and Redevelopment Plan would create a presumption of main street status. Streets located outside designated Centers might qualify as main streets on a case-by-case basis. Considerations such as functional class and traffic volume might override a qualifying score in individual cases.

The study team recommends that NJDOT adopt a threshold score of *zero* to distinguish main streets from other state highways. State highway segments with positive scores might qualify as main streets, while those with negative scores would not. The scoring formula in Equation 1 has been applied to the 50 streets in the visual preference survey. Recall that the formula does not include a constant term nor two purely aesthetic variables, underground utilities and quality of pavement maintenance. There is an obvious break point in the scoring at computed values around zero. In the Appendix, the 30 scenes with the highest average ratings in the visual preference survey, through NJ 77 in Bridgeton, have computed scores above zero. Nearly all of these have the look of traditional main streets. The remaining scenes mostly have computed scores below zero. Most do not fit the image of traditional main streets. The principal exception is Broadway (Rt. 551) in Camden, whose dilapidated buildings depressed the scores assigned by viewers to an otherwise classic main street.

How many state highways would currently qualify as main streets under the formula? Applying the scoring formula to the 50 main streets in the survey sample, and screening for streets located within designated Centers in the State Development and Redevelopment Plan, 11 streets would presumptively qualify for main street status (see Table 3). Extrapolating statewide, about 125 of the 566 municipalities in New Jersey might be expected to have qualifying roadways.

Beyond identifying existing main streets, the main street scoring formula can be applied to state highways prospectively. It can be used to assess proposed redesigns for their potential to make ordinarily highways into main streets. Consider County Route 57 in Long Branch. As currently configured, this street has a main street score of –1.06, well below the qualifying score of zero. However, the municipality has plans to reduce the width, reduce speeds, add crossings, and add street trees. In the scoping process, proposed changes could be factored and the main street score adjusted accordingly.

Let's consider a dramatic redesign: lanes and shoulders are narrowed, sidewalks widened to six feet, a buffer strip added along the entire length, trees planted in the buffer strip to cover 50% of the frontage, parking allowed in what are now shoulders such that parked cars typically occupy 30% of the frontage, and curb extensions with trees added periodically to form protected parking bays. With this redesign, the main street score would just clear the threshold value of zero, coming in at 0.16 ($0.492 \times 0 - 0.970 \times 0.6 + 1.053 \times 0 + 0.855 \times 0.5 - 1.99 \times 4 + 0.0483 \times 6 + 0.509 \times 1$). This type of evaluation could be applied to any roadway improvement in the state.

The main street scoring formula can also be used to identify state highways for which planning/scoping goals are inconsistent with existing function and context. Desirable Typical Sections (DTS) of state highways are listed in the 1997 NJDOT *New Jersey*

State Highway Access Management Code. Of the 11 qualifying main streets in Table 3, all but one have desired widths greater than existing curb-to-curb widths (see Table 4). Five have desired widths two or more times greater than existing widths. Four have desired widths in excess of existing building-to-building distances. This means that these buildings would need to be demolished if the desired sections were ever to be built.

The study team realizes that this is only a remote possibility given the political and financial implications. Yet the disconnect between desired and existing widths for New Jersey's Main Streets underscores the need to reconcile agency goals with existing conditions.

Municipality	Route Number	Computed Main Street Score	State Plan Designation
Andover	206	0.24	Town Center
Bernardsville	202	0.90	Town Center
Bridgeton	77	0.83	Regional Center
Freehold Borough	79	0.53	Town Center
Kearny – North Arlington	7	0.18	Urban Complex
New Brunswick	21	0.78	Urban Center
Princeton	27	1.63	Regional Center
Red Bank	35	1.26	Regional Center
Salem	49	0.98	Regional Center
Somerville	28	1.76	Regional Center
Woodstown	40	0.76	Town Center

Table 3: State Highways in Centers with Qualifying Main Street Scores

Municipality	Route Number	Existing Curb to Curb Width, ft.	Desired Curb to Curb Width, ft.	Existing Building to Building Distance, ft.
Andover	206	34	68	--
Bernardsville	202	52	78	65
Bridgeton	77	42	78	--
Freehold Borough	79	30	78	--
Kearny–North Arlington	7	36	78	54
New Brunswick	21	58	124	--
Princeton	27	46	existing	--
Red Bank	35	40	102	--
Salem	49	58	102	92
Somerville	28	48	92	81
Woodstown	40	40	78	--

Table 4: Existing v. Desired Widths of State Highways with Qualifying Main Street Scores

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[10] *Visual Preference Survey of Bus Riders Perceptions of Personal Safety.* Research in progress. http://www.trb.org.
[11] Ibid
[12][12] Environmental preference surveys dating back to the late 1960s are reviewed in L.M. Arthur, T.C. Daniel, and R.S. Boster, "Scenic Assessment: An Overview," Landscape Planning, Vol. 4, 1977, pp. 109-129; R.S. Ulrich, "Aesthetic and Affective Response to Natural Environment," In I. Altman and J.F. Wohlwill (eds.), Behavior and the Natural Environment, Plenum Press, New York, 1983, pp. 85-125; H.W. Schroeder, "Environment, Behavior, and Design Research on Urban Forests," In E.H. Zube and G.T. Moore (eds.), Advances in Environment, Behavior, and Design - Volume 2, Plenum Press, New York, 1988, pp. 87-117; and R. Kaplan and S. Kaplan, The Experience of Nature - A Psychological Perspective, Cambridge University Press, New York, 1989, pp. 216-291. Design-oriented surveys, more akin to our survey, include: G.S. Shaffer and L.M. Anderson, "Perceptions of the Security and Attractiveness of Urban Parking Lots," Journal of Environmental Psychology, Vol. 5, 1983, pp. 311-323; T.R. Hudspeth, "Visual Preference as a Tool for Facilitating Citizen Participation in Waterfront Revitalization," Journal of Environmental Management, Vol. 23, 1986, pp. 373-385; and J.L. Nasar, "The Effect of Sign Complexity and Coherence on the Perceived Quality of Retail Scenes," Journal of the American Planning Association, Vol. 53, 1987, pp. 499-509.
[13] H.W. Schroeder, "Environmental Perception Rating Scales: A Case for Simple Methods of Analysis," Environment and Behavior, Vol. 16, 1984, pp. 573-598.
[14]

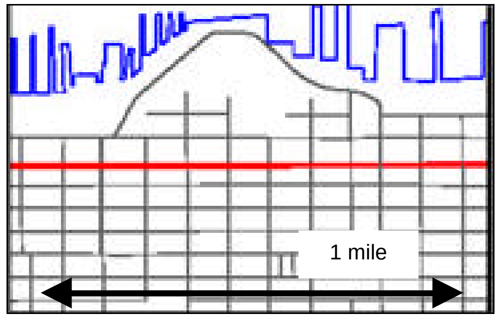
[15] T.R. Herzog, S. Kaplan, and R. Kaplan, "The Prediction of Preference for Unfamiliar Urban Places," Population and Environment, Vol. 5, 1982, pp. 43-59; T.R. Herzog, "A Cognitive Analysis of Preference for Waterscapes," Journal of Environmental Psychology, Vol. 5, 1985, pp. 225-241; and T.R. Herzog, "A Cognitive Analysis of Preference for Urban Nature," Journal of Environmental Psychology, Vol. 9, 1989, pp. 27-43.
[16] A.C. Nelessen, Visions for a New American Dream: Process, Principles, and an Ordinance to Plan and Design Small Communities. APA Planners Press, Washington, D.C., 1994.
[17] S.W. Raudenbush and A.S. Bryk, *Hierarchial Linear Models: Applications and Data Analysis*, Second Edition. Beverly Hills: Sage, 1992.

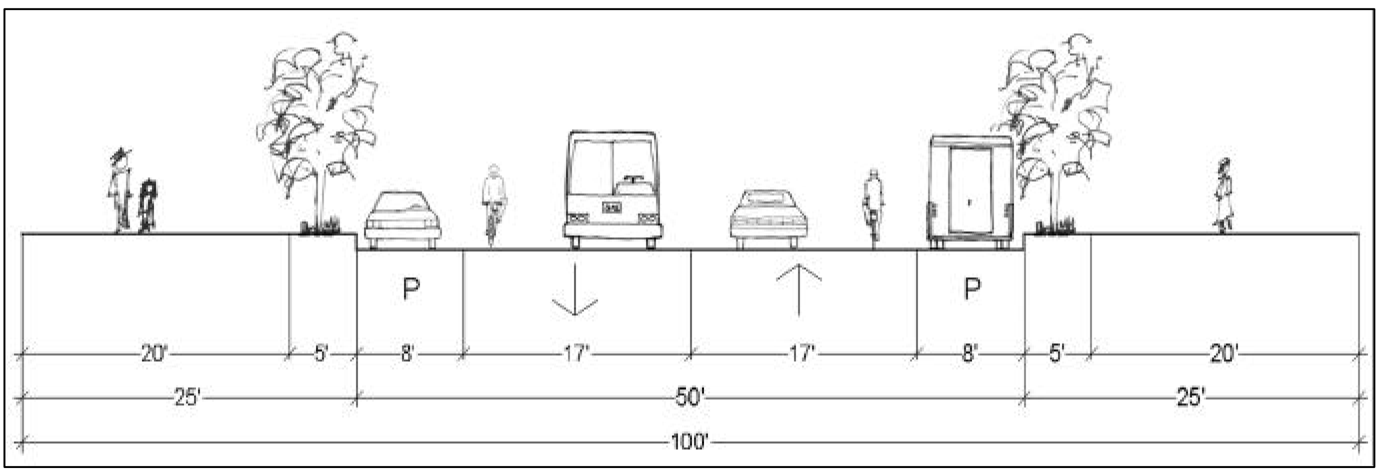
APPENDIX A

Main Street Profiles

Hoboken

Washington St.
8^{th} Street – 1^{st} Street
Mile post 0.5 – 1.1





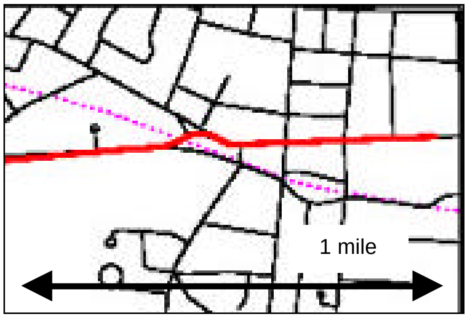
Present Suitability as Main Street	5.63
Future Potential for Main Street	6.41
Functional Class	Urban Collector
Volume	15,000 (2000)
Volume/Lane	7,500
Posted Speed Limit	25 mph
Peak Hour Average Speeds	N/A
State Plan Center	Urban Complex
Land Use	Residential, Commercial
Truck Route	In State
Designated Bus Stops	Yes
Access Level	None
Desirable Typical Section Peak	None

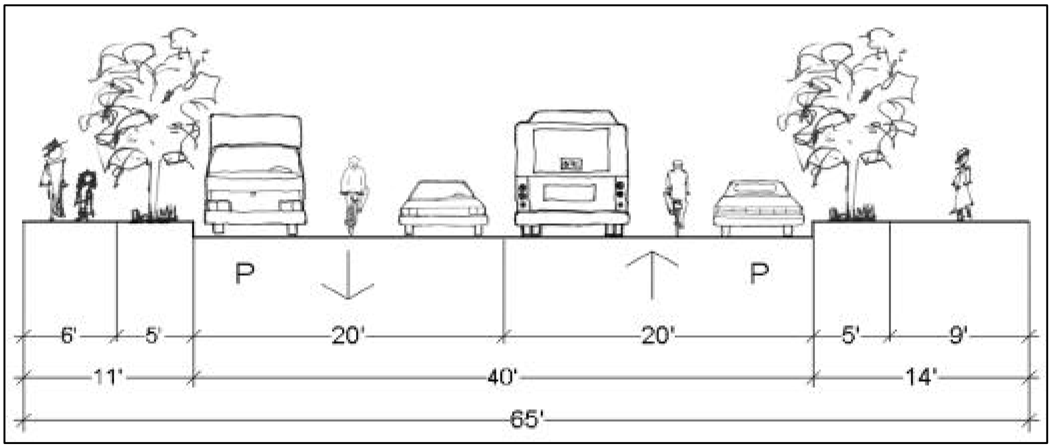
Madison

Main Street

Central Ave.-Rosedale Ave.

Mile post 4.6 – 5.1

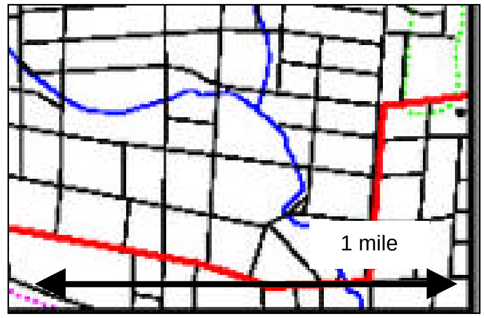


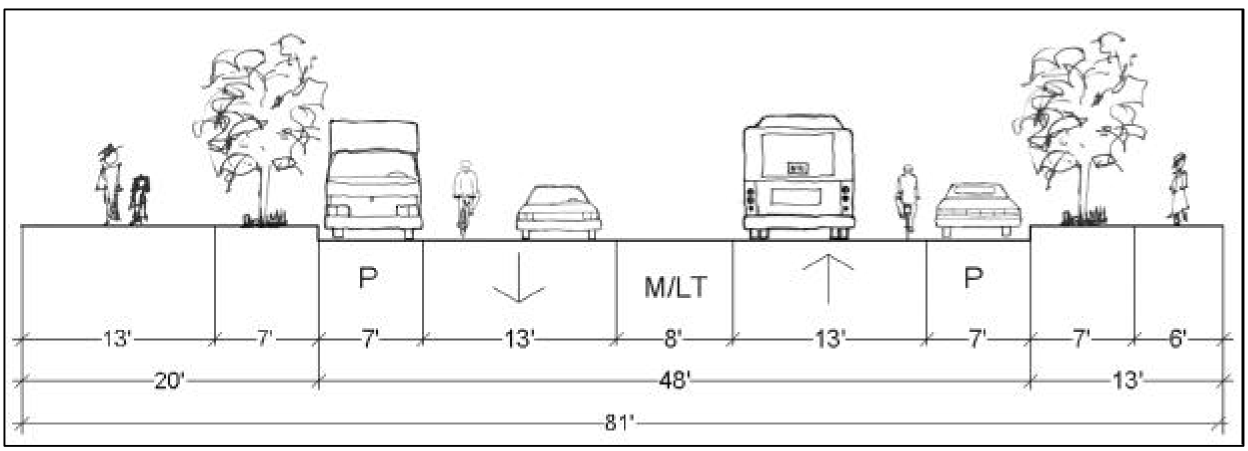


Present Suitability as Main Street	5.31
Future Potential for Main Street	6.44
Functional Class	Urban Principal Arterial
Volume	17,279 (2002)
Volume/Lane	8640
Posted Speed Limit	30 mph
Peak Hour Average Speeds	3-35 mph
State Plan Center	No
Land Use	Commercial, Train Station
Truck Route	In State
Designated Bus Stops	Yes
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	78', 2 Lanes, Shoulder

Somerville

W. Main Street
Doughty Ave. – South Bridge Street
Mile post 3.0 – 3.4





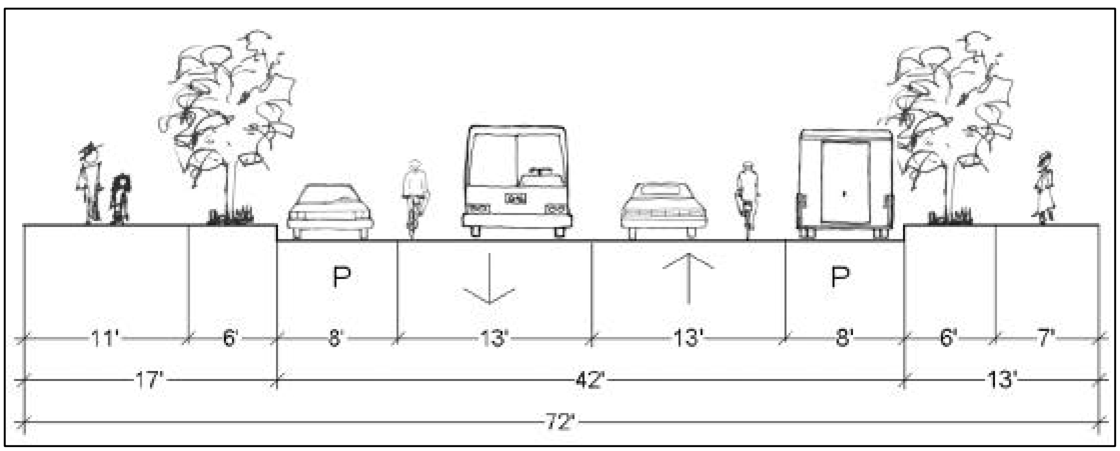
Present Suitability as Main Street	5.31
Future Potential for Main Street	6.36
Functional Class	Urban Principal Arterial
Volume	18,122 (2002)
Volume/Lane	9061
Posted Speed Limit	30 mph
Peak Hour Average Speeds	6-35 mph
State Plan Center	Regional Center
Land Use	Commercial, Train Station
Truck Route	In State
Designated Bus Stops	Yes
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	92’, 2 Lanes, Shoulder

Morristown

South Street

South Park Place-Elm Street

Mile post 0.0-0.4



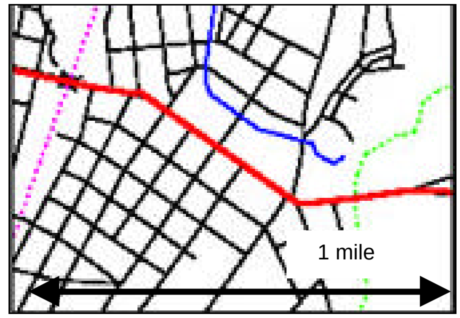
Present Suitability as Main Street	5.29
Future Potential for Main Street	6.35
Functional Class	Urban Principal Arterial
Volume	17,492 (2002)
Volume/Lane	8746
Posted Speed Limit	30 mph
Peak Hour Average Speeds	8-21 mph
State Plan Center	No
Land Use	Commercial
Truck Route	In State
Designated Bus Stops	Yes
Access Level	At Street or Interchange
Desirable Typical Section Peak	102’, 4 Lanes, Parking

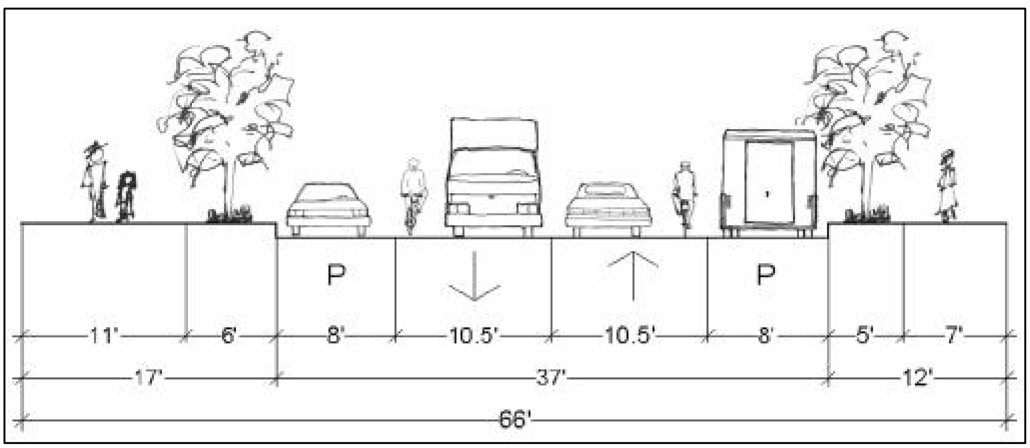
Hackettstown

Main Street

High Street – Willow Grove Street

Mile post 21.3 – 21.7





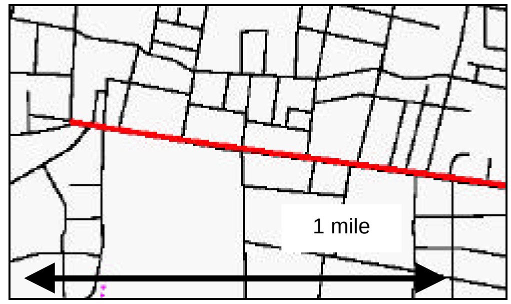
Present Suitability as Main Street	5.26
Future Potential for Main Street	6.28
Functional Class	Urban Minor Arterial
Volume	18,142 (2002)
Volume/Lane	9071
Posted Speed Limit	30 mph
Peak Hour Average Speeds	8-33 mph
State Plan Center	No
Land Use	Commercial, Park
Truck Route	In State
Designated Bus Stops	No
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	78', 4 Lanes, No Shoulder

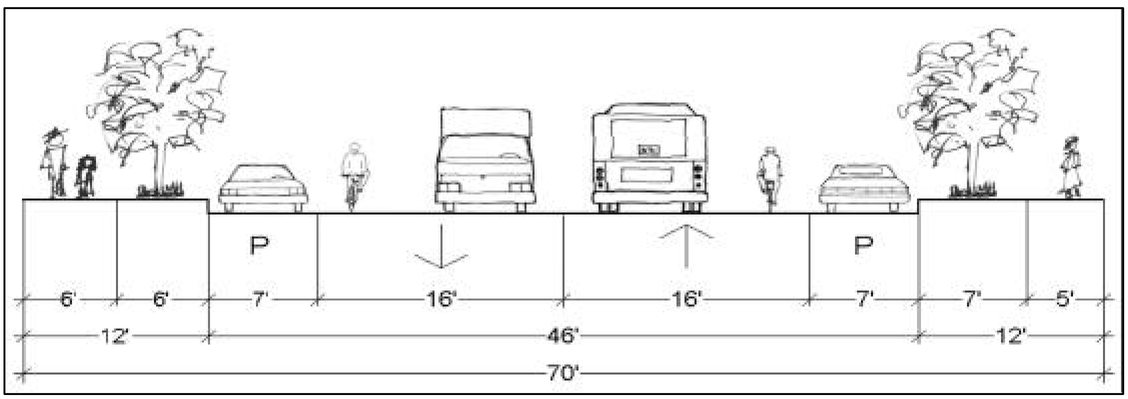
Princeton

Nassau Street

Bayard Lane – Linden Lane

Mile post 0.0 – 0.9





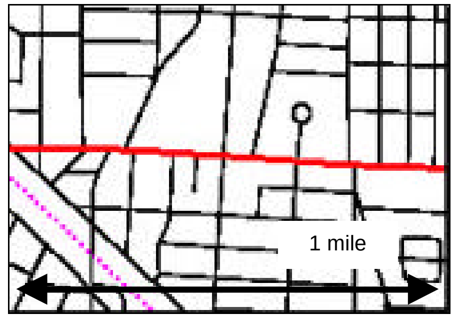
Present Suitability as Main Street	5.21
Future Potential for Main Street	6.37
Functional Class	Urban Principal Arterial
Volume	17,290 (2002)
Volume/Lane	8645
Posted Speed Limit	25mph
Peak Hour Average Speeds	1-35 mph
State Plan Center	Regional Center
Land Use	Residential, Commercial, University
Truck Route	In State
Designated Bus Stops	Yes
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	Existing
Notes:	Striped left turn lanes, striped median periodically

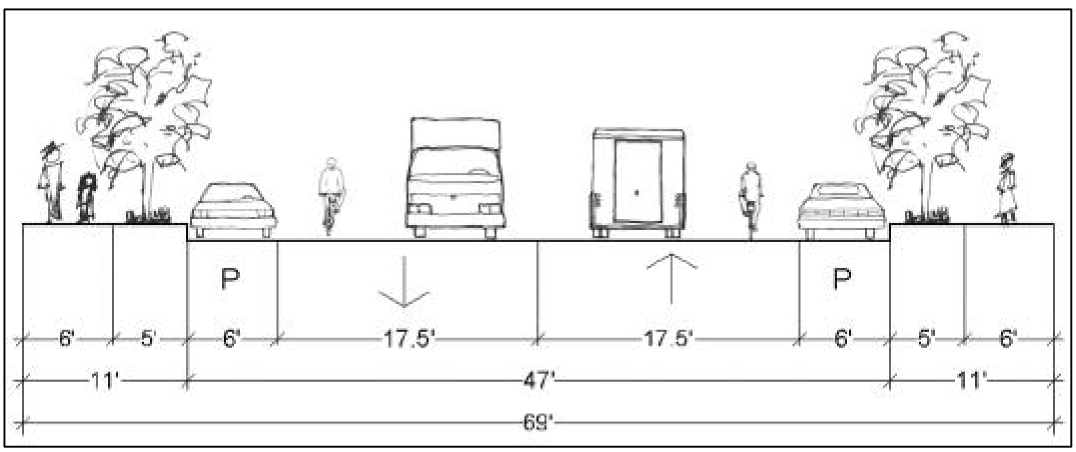
Westfield

E. Broad Street

North Ave. – Park Drive

Mile post 0.0-0.4

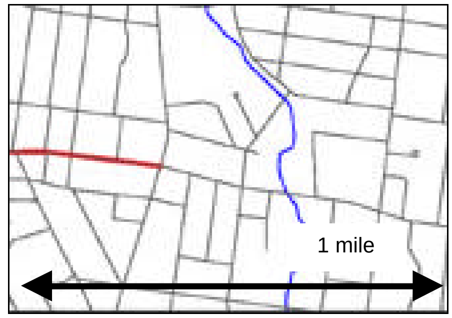


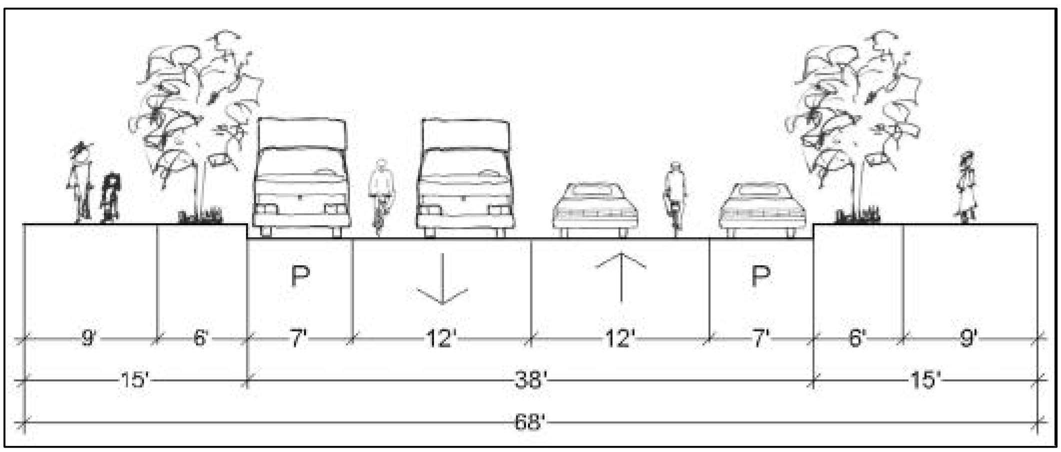


Present Suitability as Main Street	5.16
Future Potential for Main Street	6.28
Functional Class	Urban Minor Arterial
Volume	20,061(1999)
Volume/Lane	10,030
Posted Speed Limit	25 mph
Peak Hour Average Speeds	N/A
State Plan Center	No
Land Use	Commercial
Truck Route	In State
Designated Bus Stops	No
Access Level	None
Desirable Typical Section Peak	No
Notes:	Striped left turn lane

Ridgewood

E. Ridgewood Ave.
S. Broad Street – S. Maple Ave.
Mile post 0.0





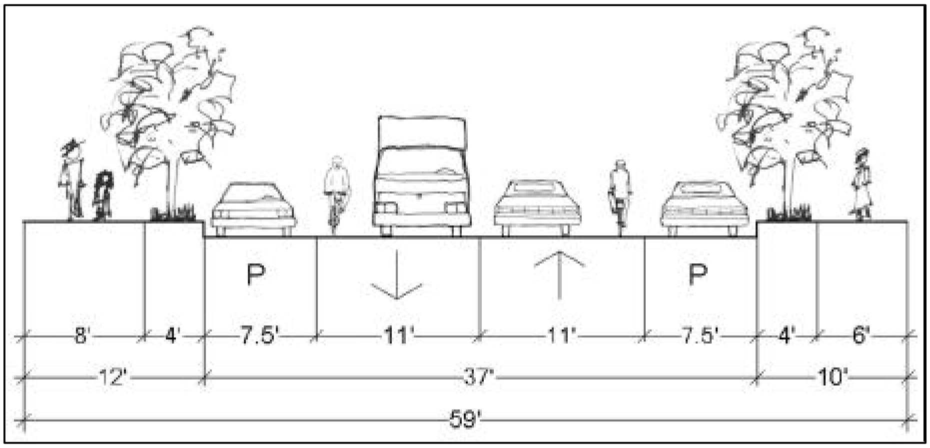
Present Suitability as Main Street	5.10
Future Potential for Main Street	6.22
Functional Class	Urban Collector
Volume	N/A
Volume/Lane	N/A
Posted Speed Limit	30 mph
Peak Hour Average Speeds	8-33 mph
State Plan Center	No
Land Use	Commercial
Truck Route	In State
Designated Bus Stops	No
Access Level	None
Desirable Typical Section Peak	None

Pitman Borough

Broadway

Pitman Ave. – W. Holly Ave.

Mile post 1.1 – 1.3



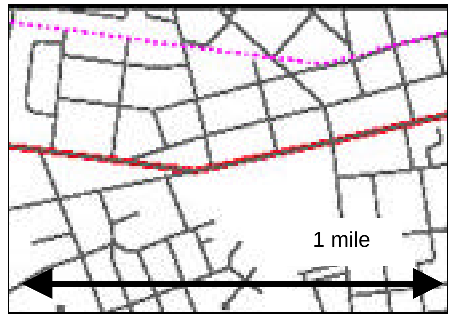
Present Suitability as Main Street	5.05
Future Potential for Main Street	6.29
Functional Class	Urban Minor Arterial
Volume	21,800 (1999)
Volume/Lane	10,900
Posted Speed Limit	25mph
Peak Hour Average Speeds	N/A
State Plan Center	No
Land Use	Commercial
Truck Route	No 102" / 53'
Designated Bus Stops	Yes
Access Level	None
Desirable Typical Section Peak	None

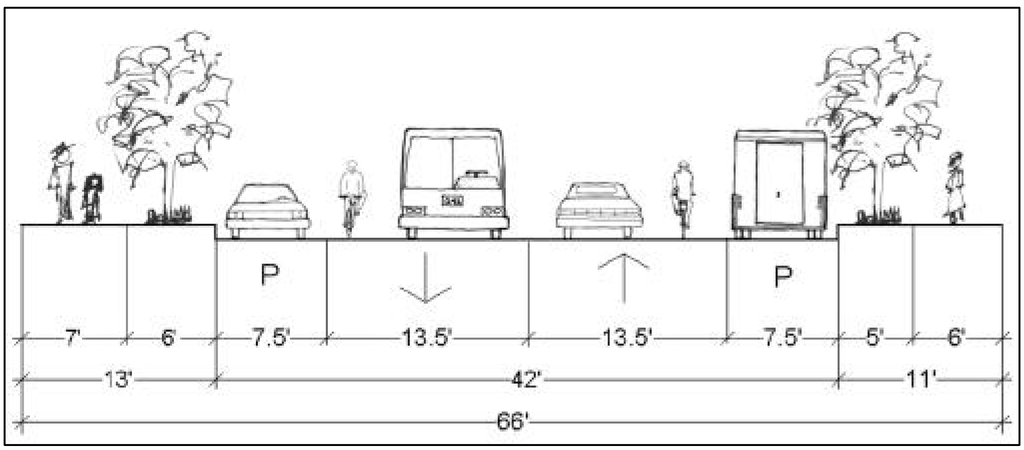
Moorestown

Main Street

Union Street – Chester Ave.

Mile post 9.6 – 10.2



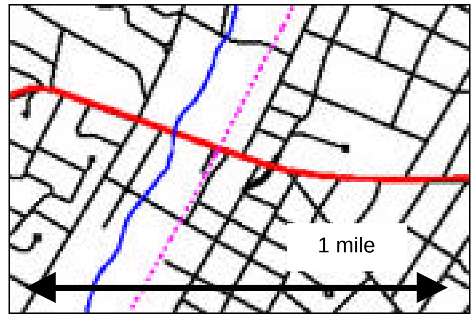


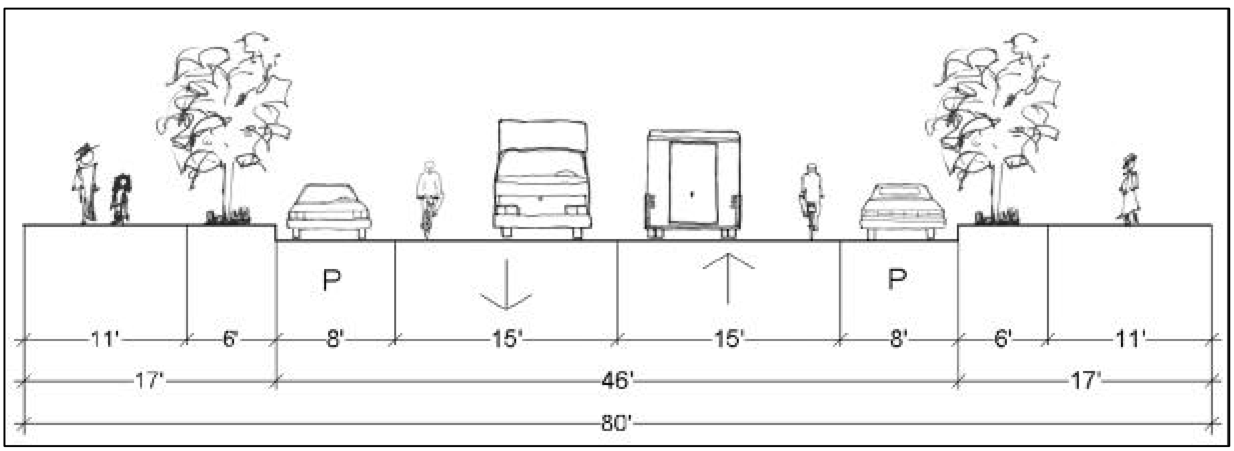
Present Suitability as Main Street	4.88
Future Potential for Main Street	5.51
Functional Class	Urban Minor Arterial
Volume	N/A
Volume/Lane	N/A
Posted Speed Limit	25 mph
Peak Hour Average Speeds	N/A
State Plan Center	No
Land Use	Commercial
Truck Route	In State
Designated Bus Stops	Yes
Access Level	None
Desirable Typical Section Peak	None

South Orange

South Orange Ave.

Scottland Road – Park Place
Mile post 24.6 – 24.9

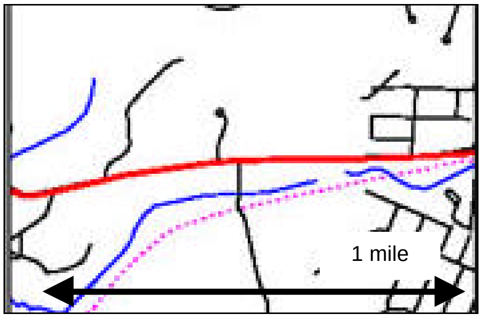


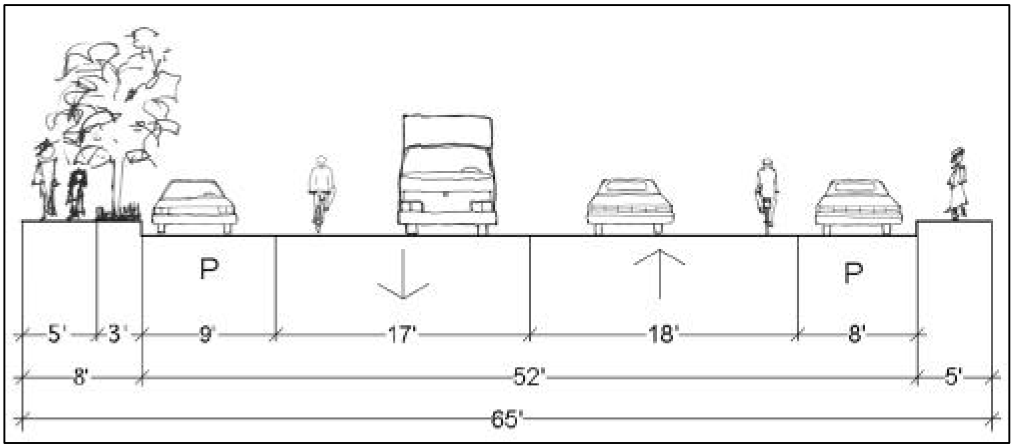


Present Suitability as Main Street	4.86
Future Potential for Main Street	5.89
Functional Class	Urban Principal Arterial
Volume	2334 (2002)
Volume/Lane	1167
Posted Speed Limit	25 mph
Peak Hour Average Speeds	19-27 mph
State Plan Center	No
Land Use	Commercial, Train Station
Truck Route	In State
Designated Bus Stops	No
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	None

Bernardsville

Route 202
Woodland Rd. – Anderson Hill Road
Mile post 36.8 – 37.1



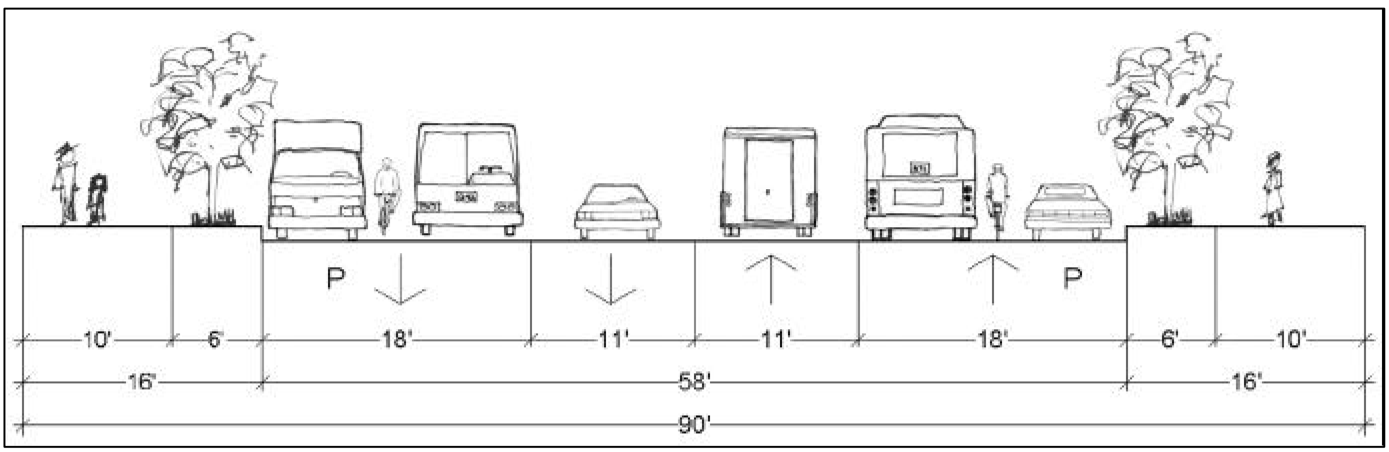


Present Suitability as Main Street	4.79
Future Potential as Main Street	6.09
Functional Class	Urban Minor Arterial
Volume	15,673 (2002)
Volume/Lane	7827
Posted Speed Limit	30 mph
Peak Hour Average Speeds	28-35 mph
State Plan Center	Town Center
Land Use	Residential, Commercial, Train Station
Truck Route	In State
Designated Bus Stops	No
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	78', 2 Lanes, Shoulder
Notes:	Measurements taken at crosswalk, roadway narrows considerably before and after

Woodbury

Broad Street

Penn Street – Delaware Street
Mile post 25.5 – 25.9

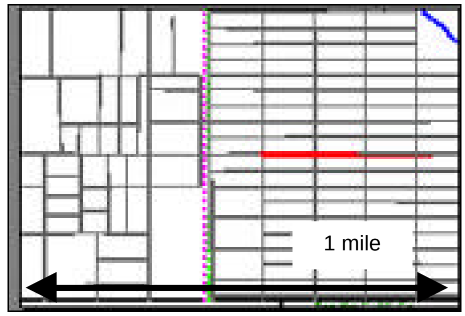


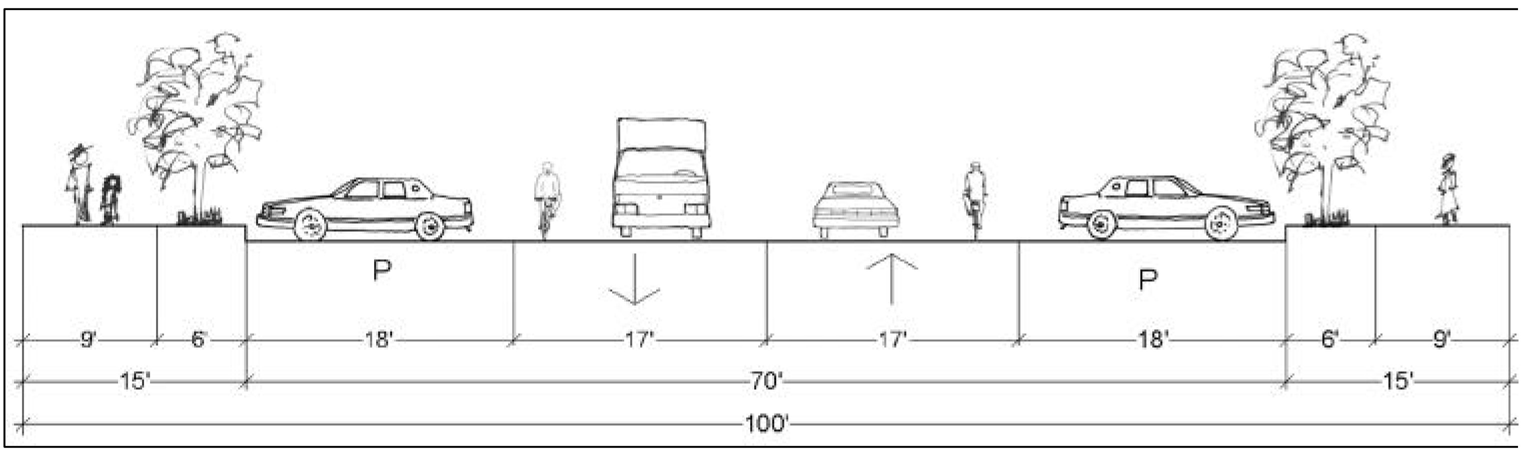
Present Suitability as Main Street	4.71
Future Potential for Main Street	6.13
Functional Class	Urban Minor Arterial
Volume	38,292 (2002)
Volume/Lane	9573
Posted Speed Limit	25 mph
Peak Hour Average Speeds	4-20 mph
State Plan Center	No
Land Use	Commercial, Institutional
Truck Route	No 102" / 52'
Designated Bus Stops	Yes
Access Level	None
Desirable Typical Section Peak	78', 4 Lanes, No Shoulder

Egg Harbor City

Philadelphia Ave.

White House TNPK (30) – Duerer Street
Mile post 16.6 – 17.5

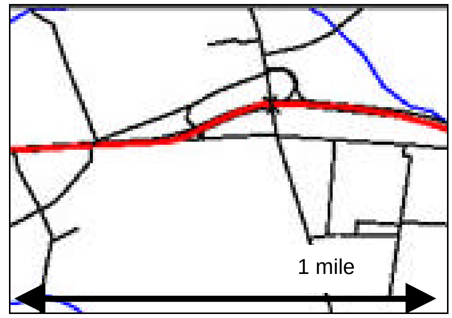


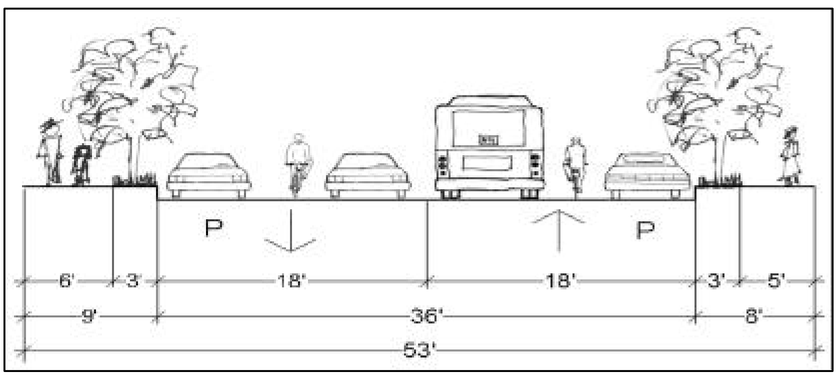


Present Suitability as Main Street	4.65
Future Potential for Main Street	5.91
Functional Class	Rural Major Collector
Volume	7166 (2002)
Volume/Lane	3583
Posted Speed Limit	25 mph
Peak Hour Average Speeds	N/A
State Plan Center	Town Center
Land Use	Commercial
Truck Route	In State
Designated Bus Stops	No
Access Level	None
Desirable Typical Section Peak	None

Chester

Main Street
Route 206 – Hillside Road
Mile post 30.3 – 30.6





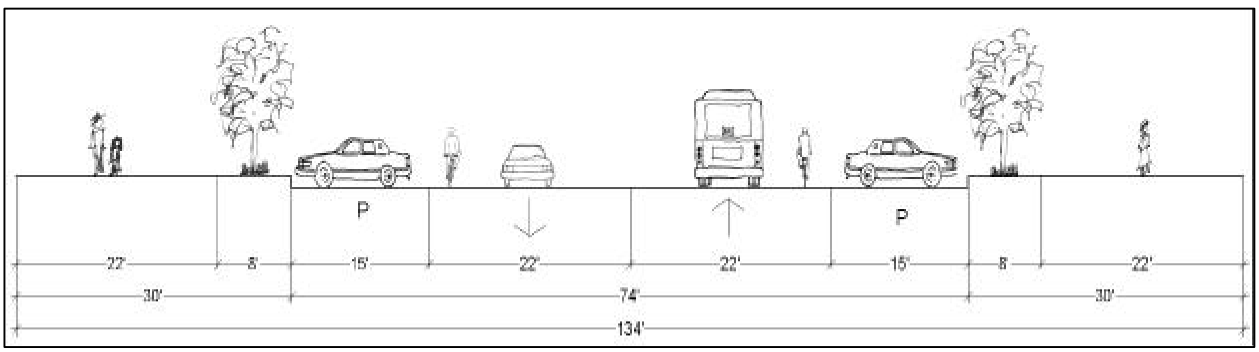
Present Suitability as Main Street	4.57
Future Potential for Main Street	6.00
Functional Class	Rural Minor Arterial
Volume	10,794 (2002)
Volume/Lane	5397
Posted Speed Limit	30 mph
Peak Hour Average Speeds	N/A
State Plan Center	No
Land Use	Residential, Commercial
Truck Route	In State
Designated Bus Stops	Yes
Access Level	None
Desirable Typical Section Peak	None

Vineland

Landis Ave.

West Ave. – East Ave.

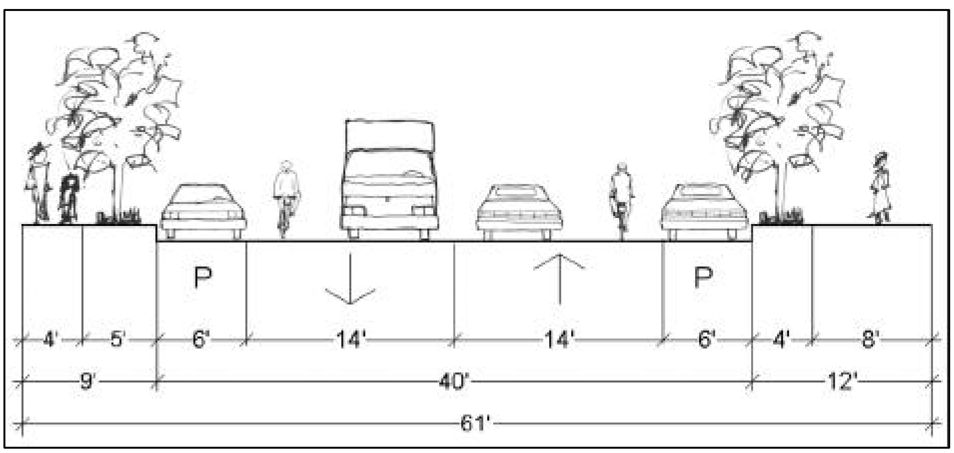
Mile post 0.4 – 1.4



Present Suitability as Main Street	4.49
Future Potential for Main Street	5.97
Functional Class	Urban Minor Arterial
Volume	N/A
Volume/Lane	N/A
Posted Speed Limit	25 mph
Peak Hour Average Speeds	N/A
State Plan Center	Regional Center
Land Use	Commercial
Truck Route	In State
Designated Bus Stops	Yes
Access Level	None
Desirable Typical Section Peak	None
Notes:	Striped left turn lanes

Metuchen

Main Street
Middlesex Ave. – Talmadge Ave.
Mile post 2.0 – 2.2

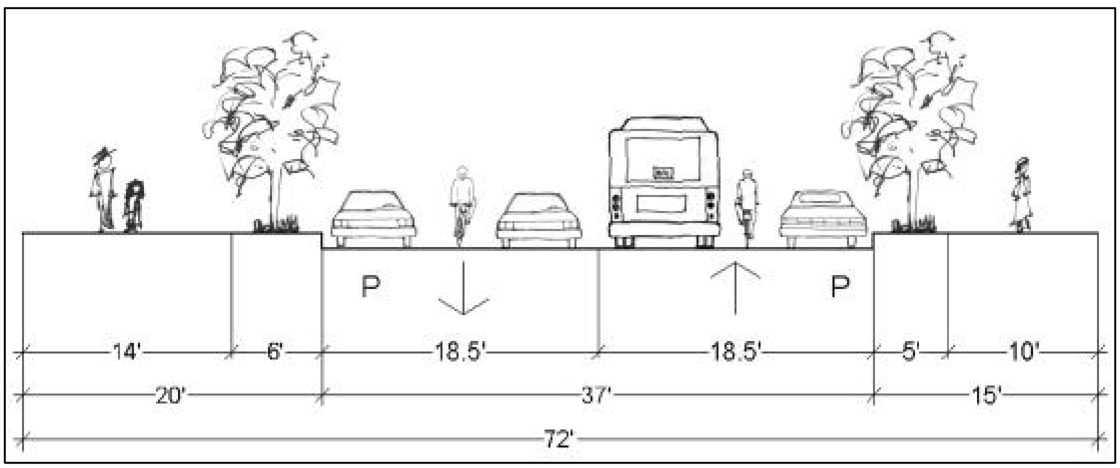


Present Suitability as Main Street	4.40
Future Potential for Main Street	5.16
Functional Class	Urban Minor Arterial
Volume	10,780 (1996)
Volume/Lane	5390
Posted Speed Limit	30 mph
Peak Hour Average Speeds	N/A
State Plan Center	Town Center
Land Use	Residential, Institutional
Truck Route	In State
Designated Bus Stops	No
Access Level	None
Desirable Typical Section Peak	None

Flemington

Main Street

Main Street – Penna Ave.
Mile post 9.9 – 10.2

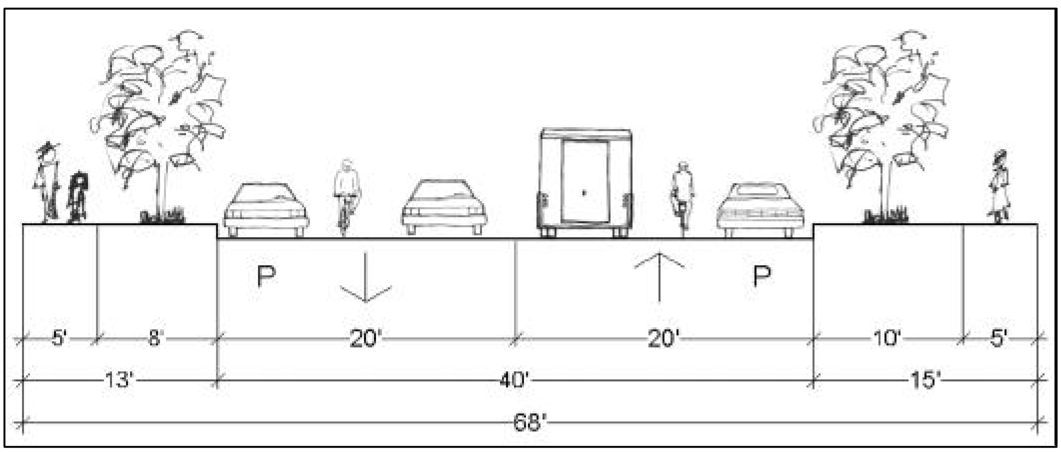


Present Suitability as Main Street	4.36
Future Potential for Main Street	5.88
Functional Class	Rural Major Collector
Volume	N/A
Volume/Lane	N/A
Posted Speed Limit	25 mph
Peak Hour Average Speeds	N/A
State Plan Center	Town Center
Land Use	Residential, Commercial
Truck Route	In State
Designated Bus Stops	Yes
Access Level	None
Desirable Typical Section Peak	None

Red Bank

Maple Ave.

Bergen Place – Monmouth Street
Mile post 33.2 – 33.7



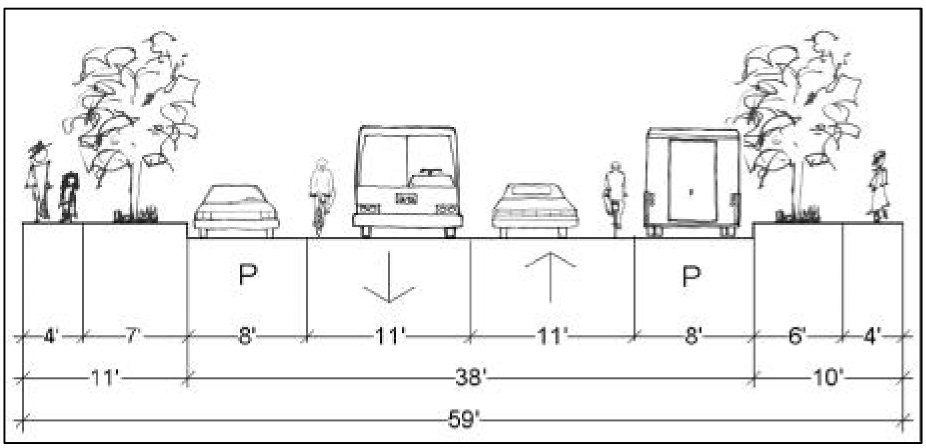
Present Suitability as Main Street	4.33
Future Potential for Main Street	4.60
Functional Class	Urban Principal Arterial
Volume	20,812 (2002)
Volume/Lane	10,406
Posted Speed Limit	35 mph
Peak Hour Average Speeds	3-40 mph
State Plan Center	Regional Center
Land Use	Residential
Truck Route	In State
Designated Bus Stops	No
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	102', 4 Lanes, Parking

Plainfield

South Ave.

Richmond Ave. – Terrill Road

Mile post 15.7 – 17.1

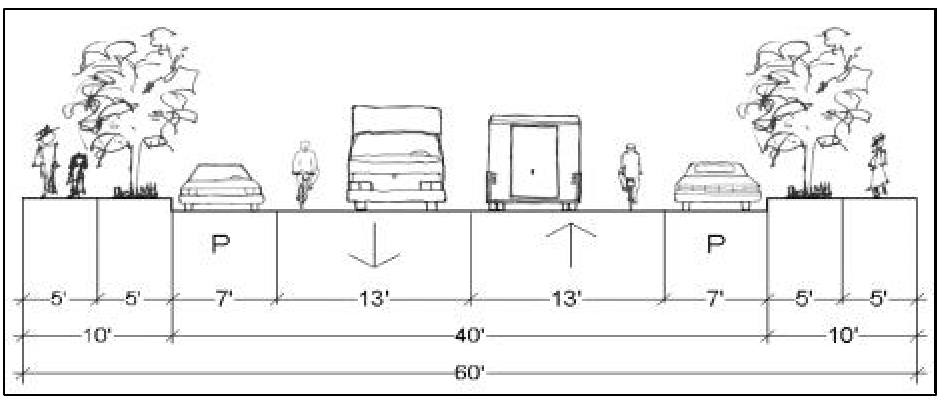


Present Suitability as Main Street	4.17
Future Suitability for Main Street	5.39
Functional Class	Urban Principal Arterial
Volume	11,880 (2002)
Volume/Lane	5940
Posted Speed Limit	25 mph
Peak Hour Average Speeds	36-40 mph
State Plan Center	No
Land Use	Commercial, Park, Train Station
Truck Route	In State
Designated Bus Stops	Yes
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	None

Woodstown

East Ave.

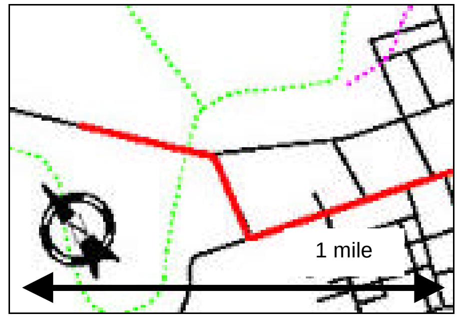
N. Main Street (45) – E. Wilson Ave.
Mile post 10.7 – 10.9

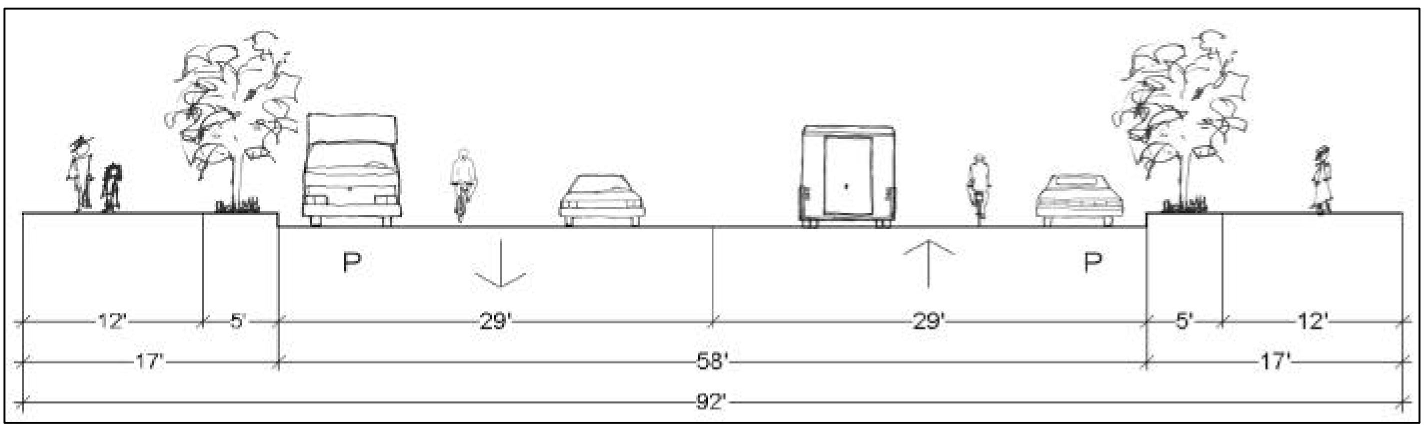


Present Suitability as Main Street	4.15
Future Potential for Main Street	5.15
Functional Class	Rural Principal Arterial
Volume	13,246 (2002)
Volume/Lane	6623
Posted Speed Limit	30 mph
Peak Hour Average Speeds	14-40 mph
State Plan Center	Town Center
Land Use	Residential, Commercial
Truck Route	In State
Designated Bus Stops	No
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	78’, 4 Lanes, No Shoulder
Notes:	Striped left turn lane

Salem

Broadway
Oak Street – Market Street
Mile post 8.9 – 9.1

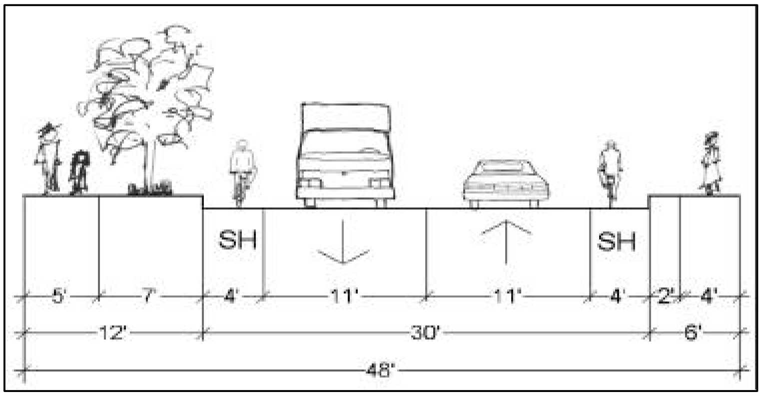




Present Suitability as Main Street	4.00
Future Potential for Main Street	6.05
Functional Class	Urban Principal Arterial
Volume	14,368 (2002)
Volume/Lane	7184
Posted Speed Limit	25 mph
Peak Hour Average Speeds	19-28 mph
State Plan Center	Regional Center
Land Use	Residential, Commercial
Truck Route	In State
Designated Bus Stops	No
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	102', 4 Lanes, Shoulder
Notes:	Striped left turn lane

Freehold Borough

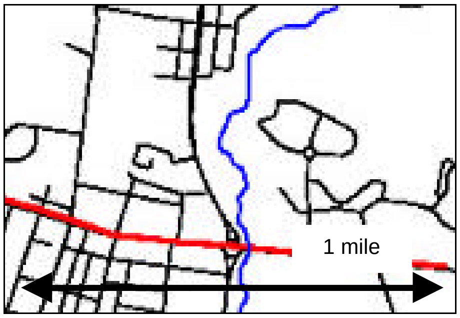
Broadway
Spring Street – Dutch Lane
Mile post 1.6 – 2.1

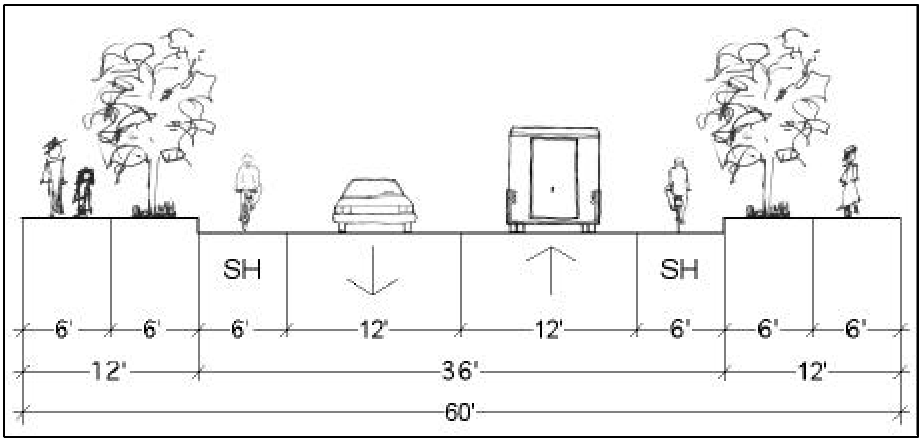


Present Suitability as Main Street	3.95
Future Potential for Main Street	4.00
Functional Class	Urban Minor Arterial
Volume	15,566 (2002)
Volume/Lane	7783
Posted Speed Limit	30 mph
Peak Hour Average Speeds	9-40 mph
State Plan Center	Town Center
Land Use	Residential
Truck Route	In State
Designated Bus Stops	No
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	78’, 4 Lanes, No Shoulder

Medford Township

Main Street
Union Street – Route 70
Mile post 10.2 – 10.5





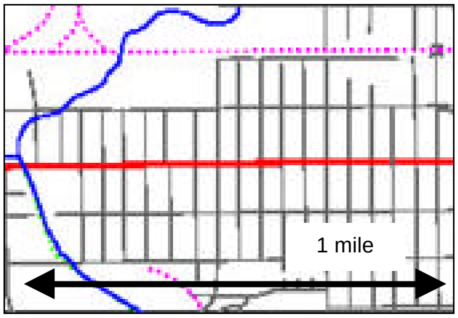
Present Suitability of Main Street	3.86
Future Potential for Main Street	4.29
Functional Class	Urban Minor Arterial
Volume	17,648 (2002)
Volume/Lane	8824
Posted Speed Limit	30 mph
Peak Hour Average Speeds	N/A
State Plan Center	No
Land Use	Residential, Park
Truck Route	In State
Designated Bus Stops	No
Access Level	None
Desirable Typical Section Peak	None

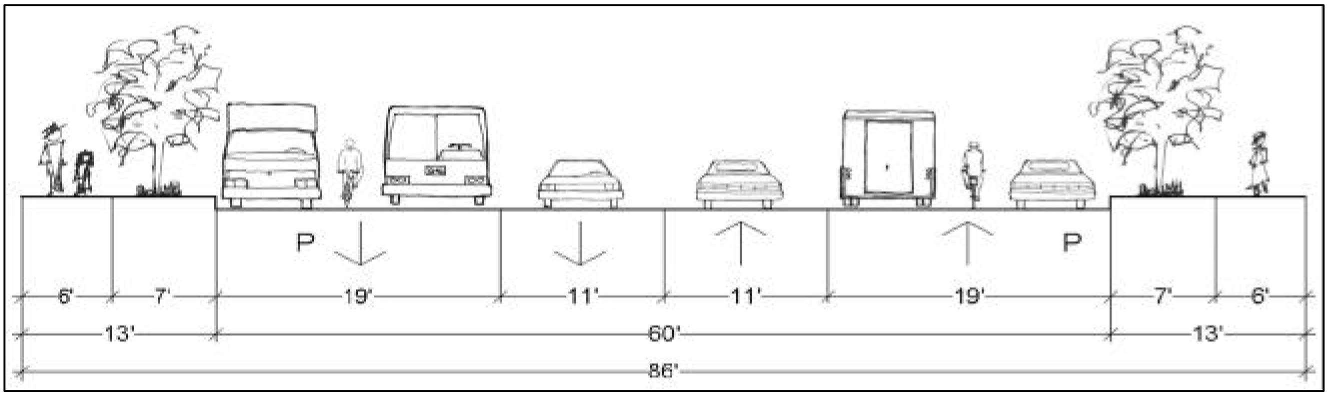
New Brunswick

Livingston Ave.

Rutgers St. – Suydam St.

Mile post 0.4 – 1.1

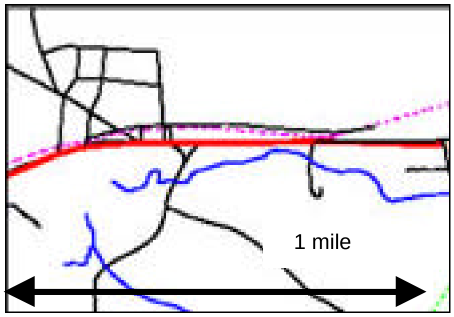


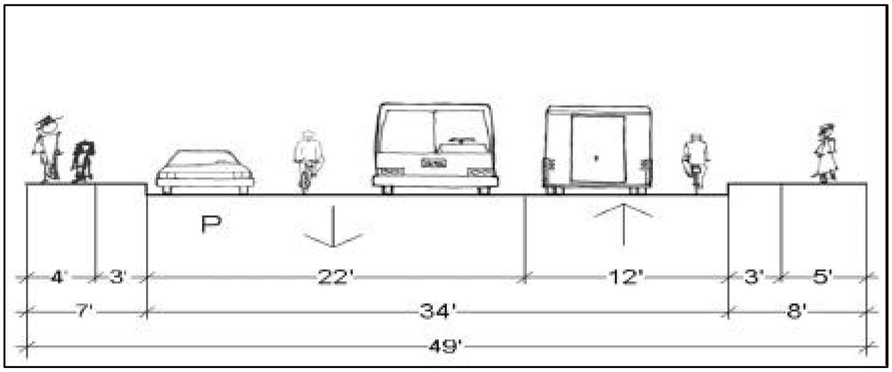


Present Suitability as Main Street	3.83
Future Potential for Main Street	4.67
Functional Class	Urban Minor Arterial
Volume	10,040 (2002)
Volume/Lane	5020
Posted Speed Limit	25 mph
Peak Hour Average Speeds	N/A
State Plan Center	Urban Center
Land Use	Residential
Truck Route	No 102” / 53’
Designated Bus Stops	Yes
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	None

Andover

Main Street, NJ 206
Smith Street (517) – Brighton Road
Mile post 103.3-103.4





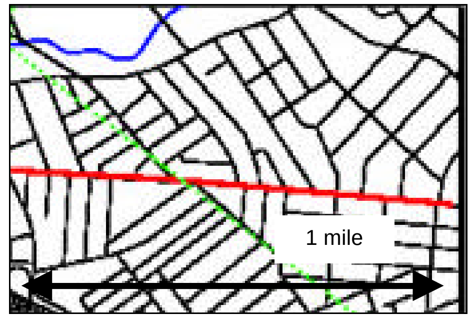
Present Suitability as Main Street	3.79
Future Potential for Main Street	5.18
Functional Class	Rural Principal Arterial
Volume	15,971 (2002)
Volume/Lane	7986
Posted Speed Limit	30 mph
Peak Hour Average Speeds	8-40 mph
State Plan Center	Town Center
Land Use	Residential, Commercial
Truck Route	In State
Designated Bus Stops	Yes
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	68', 2 Lanes, No Shoulder

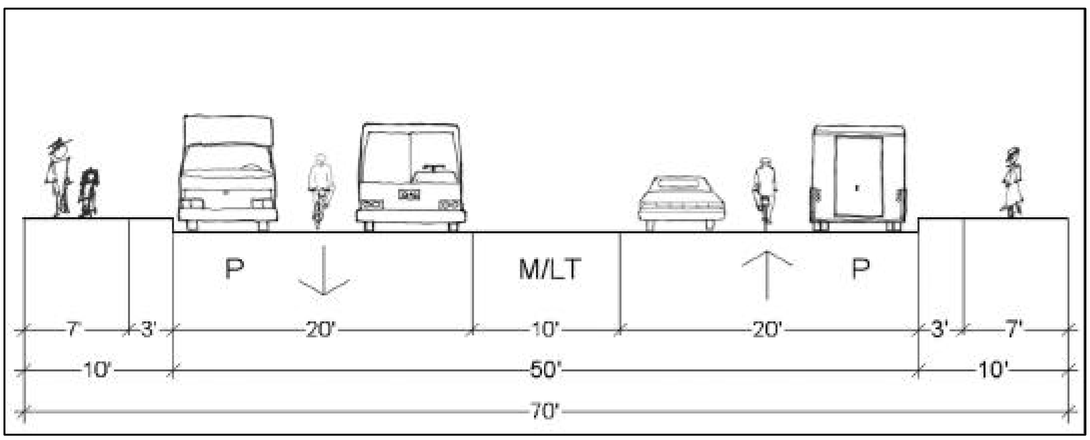
Maplewood

Springfield Ave.

Millburn Ave. – Boyden Ave.

Mile post 13.3 – 14.5



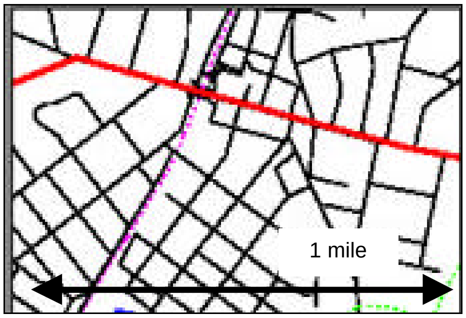


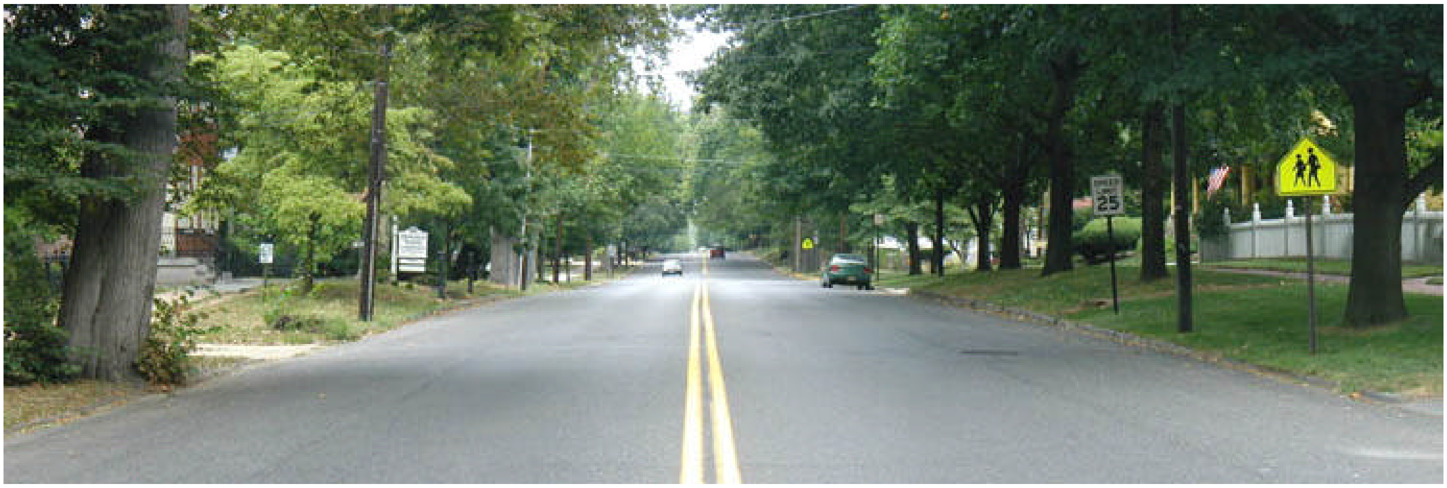
Present Suitability as Main Street	3.74
Future Potential for Main Street	5.11
Functional Class	Urban Principal Arterial
Volume	16,878 (2002)
Volume/Lane	8439
Posted Speed Limit	35 mph
Peak Hour Average Speeds	13-29 mph
State Plan Center	No
Land Use	Commercial
Truck Route	In State
Designated Bus Stops	Yes
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	102', 4 Lanes, Parking

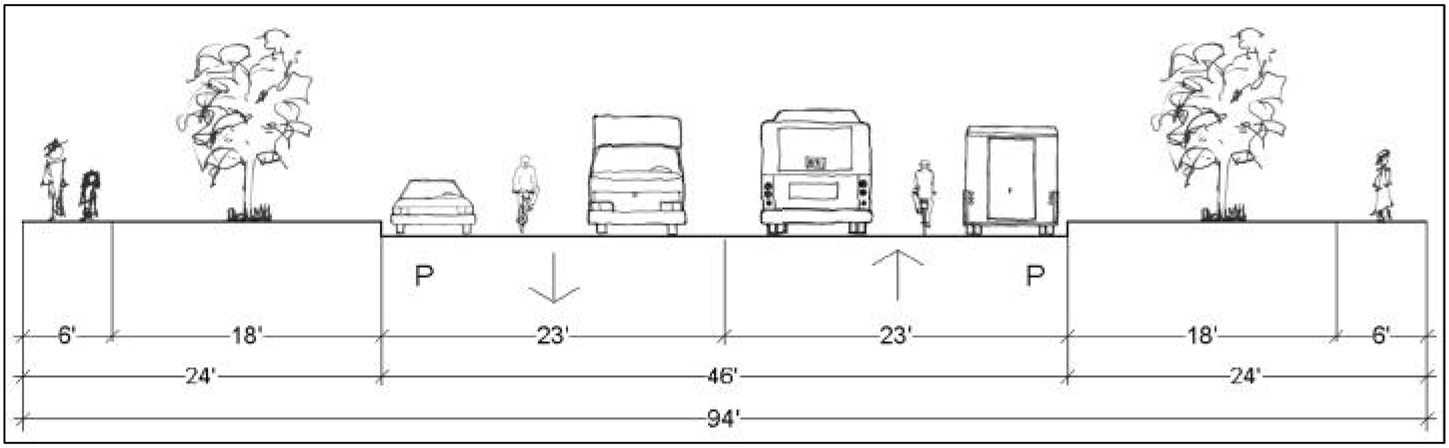
Haddonfield

Kings Highway

W. End Ave. (641) – Grove Street
Mile post 8.6 – 9.3







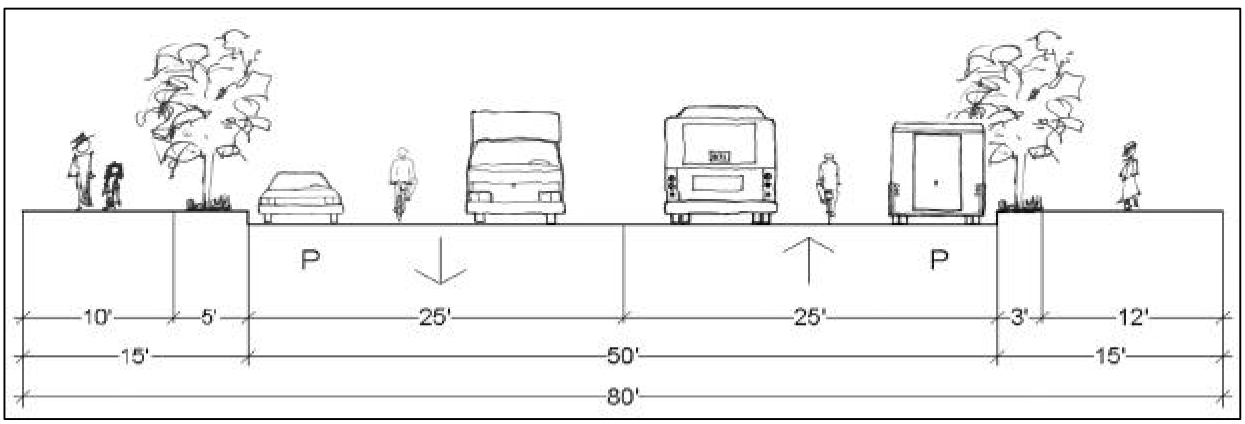
Present Suitability as Main Street	3.70
Future Potential for Main Street	4.21
Functional Class	Urban Minor Arterial
Volume	12,920 (1996)
Volume/Lane	6460
Posted Speed Limit	25 mph
Peak Hour Average Speeds	N/A
State Plan Center	No
Land Use	Residential, Office
Truck Route	In State
Designated Bus Stops	Yes
Access Level	None
Desirable Typical Section Peak	None
Notes:	Striped left turn lane

Lyndhurst

Ridge Street

Page Ave. – Freeman Street

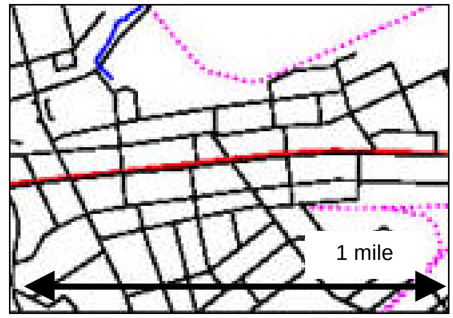
Mile post 1.8 – 2.2

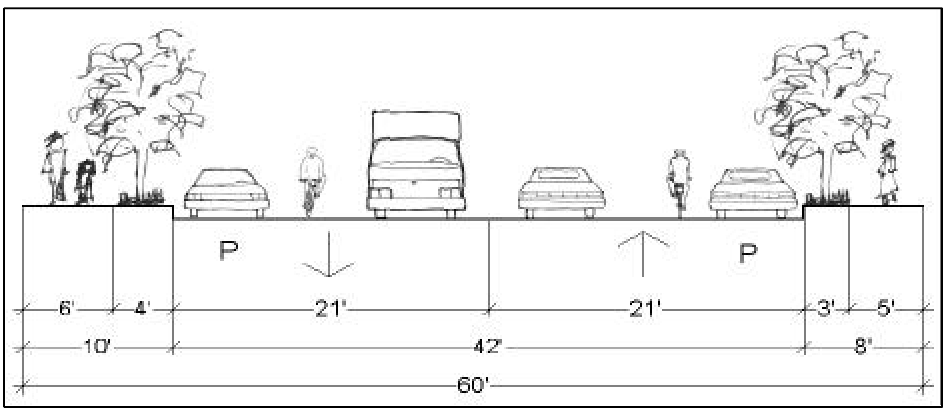


Present Suitability as Main Street	3.54
Future Potential for Main Street	4.97
Functional Class	Urban Principal Arterial
Volume	51,710 (2002)
Volume/Lane	25,855
Posted Speed Limit	35 mph
Peak Hour Average Speeds	1-22mph
State Plan Center	No
Land Use	Residential, Commercial, Train Station
Truck Route	In State
Designated Bus Stops	Yes
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	102', 4 Lanes, Parking

Bridgeton

S. Pearl St. (NJ 77)
West Broad Street – Irving Ave.
Mile post 0.0 – 0.5

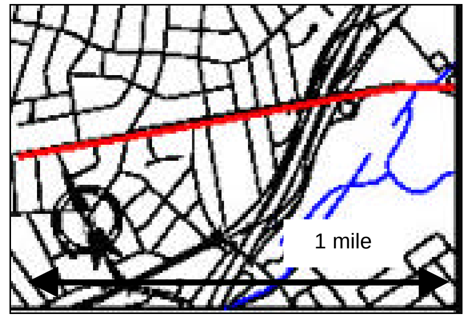


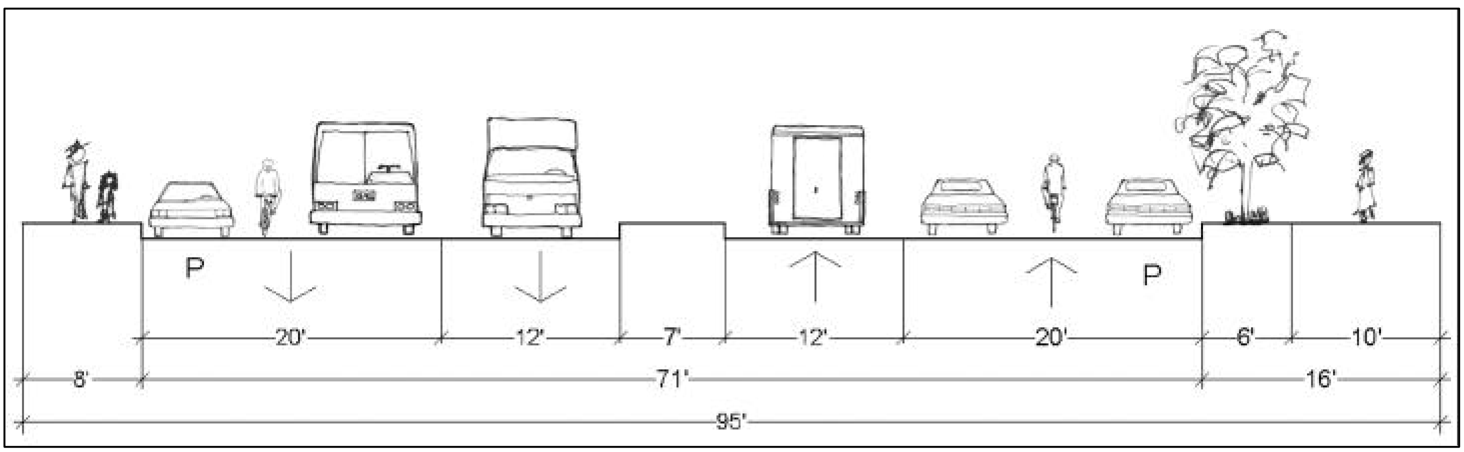


Present Suitability as Main Street	3.48
Future Potential for Main Street	4.21
Functional Class	Urban Minor Arterial
Volume	15,359 (2002)
Volume/Lane	7679
Posted Speed Limit	30 mph
Peak Hour Average Speeds	1-10 mph
State Plan Center	Regional Center
Land Use	Residential
Truck Route	In State
Designated Bus Stops	No
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	78', 4 Lanes, No Shoulder

Union Township

Morris Ave.
Stuyvesant Ave. – Warren Ave.
Mile post 2.2 – 2.6



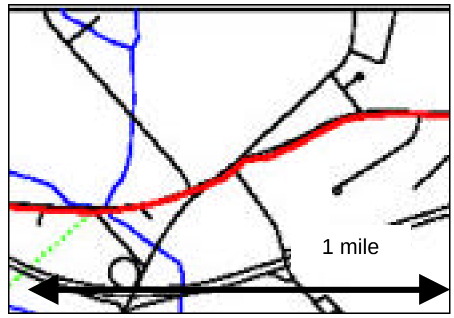


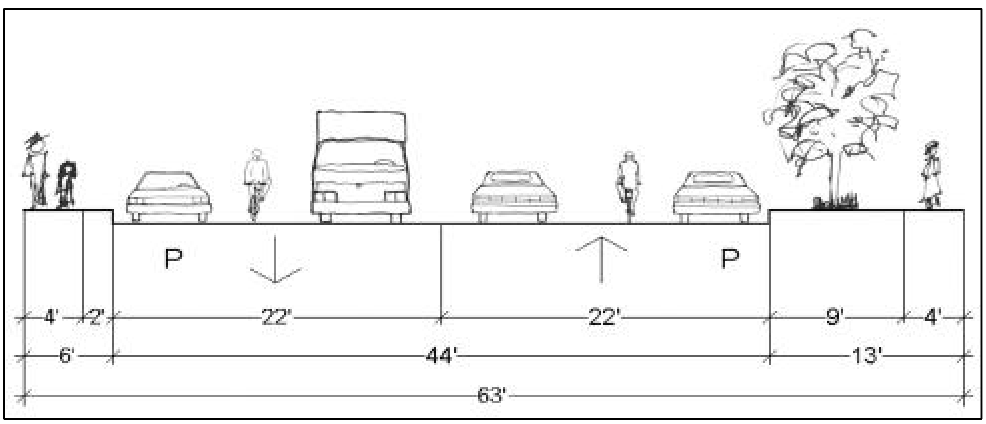
Present Suitability as Main Street	3.38
Future Potential for Main Street	4.63
Functional Class	Urban Principal Arterial
Volume	20,850 (2002)
Volume/Lane	5212
Posted Speed Limit	30 mph
Peak Hour Average Speeds	17-34 mph
State Plan Center	No
Land Use	Commercial
Truck Route	In State
Designated Bus Stops	Yes
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	102’, 4 Lanes, Parking

Ringos

John Ringo Road

John Ringo Rd.– Wertsville Rd.
Mile post 6.4 – 6.5





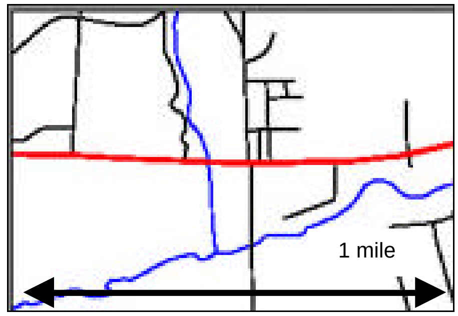
Present Suitability as Main Street	3.19
Future Potential for Main Street	3.88
Functional Class	Rural Minor Arterial
Volume	5716 (2002)
Volume/Lane	2858
Posted Speed Limit	30 mph
Peak Hour Average Speeds	32-33 mph
State Plan Center	No
Land Use	Residential, Commercial
Truck Route	In State
Designated Bus Stops	No 102" / 53'
Access Level	Driveway
Desirable Typical Section Peak	78', 2 Lanes, Shoulder
Notes:	Roadway widens considerably before and after

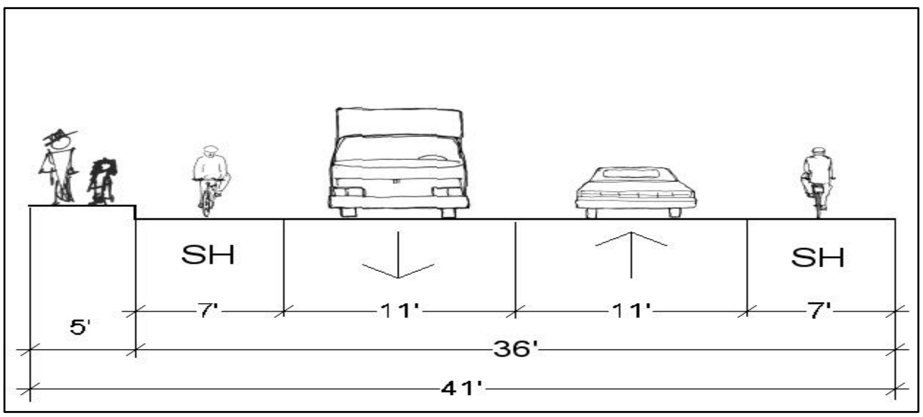
Broadway

Route 57

Asbury Rd. – A Stream at mile 7.10

Mile post 6.5 – 7.1





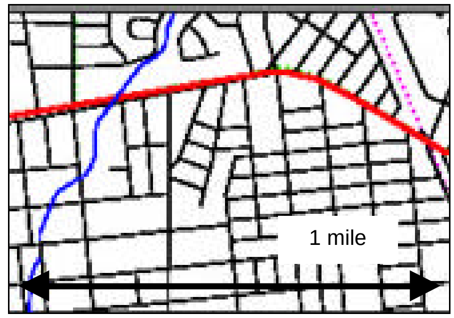
Present Suitability as Main Street	3.07
Future Potential for Main Street	3.47
Functional Class	Rural Principal Arterial
Volume	13,008 (2002)
Volume/Lane	6504
Posted Speed Limit	40 mph
Peak Hour Average Speeds	44-45 mph
State Plan Center	Town Center
Land Use	Residential
Truck Route	No 102' / 53"
Designated Bus Stops	No
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	102', 4 Lanes, Shoulder
Notes:	Parking is permitted, yet almost no usage

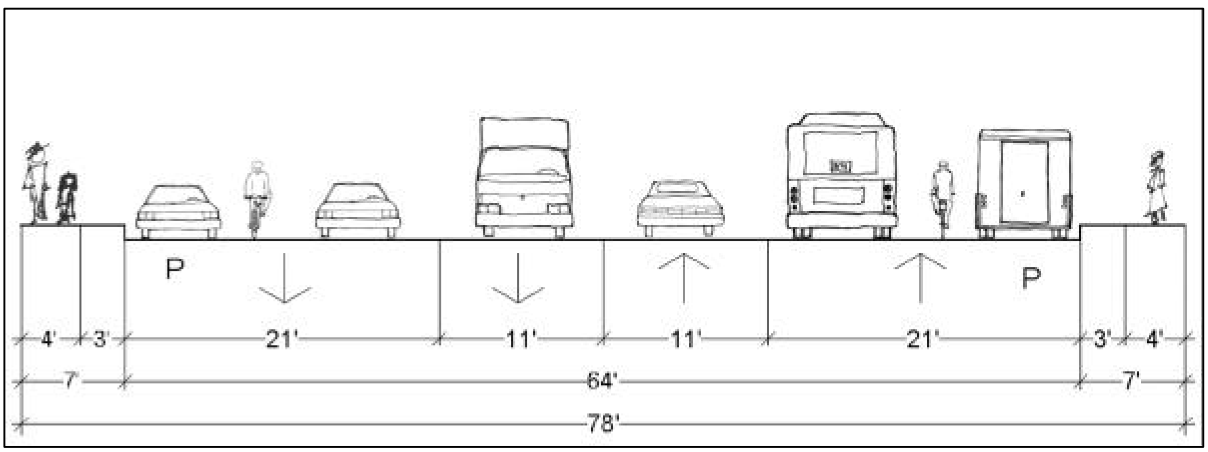
Linden

St. Georges Ave.

Dewitt Street – Chestnut Street

Mile post 30.4 – 31.1





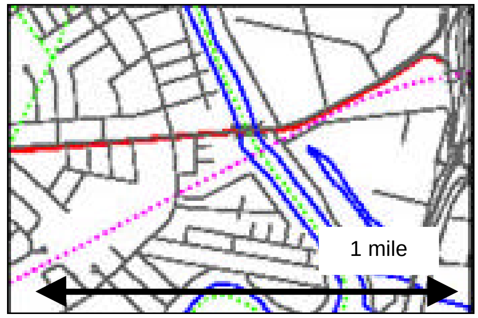
Present Suitability as Main Street	3.05
Future Potential for Main Street	4.50
Functional Class	Urban Principal Arterial
Volume	28,154 (2002)
Volume/Lane	7039
Posted Speed Limit	35 mph
Peak Hour Average Speeds	25-33 mph
State Plan Center	No
Land Use	Commercial
Truck Route	In State
Designated Bus Stops	Yes
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	102', 4 Lanes, Parking

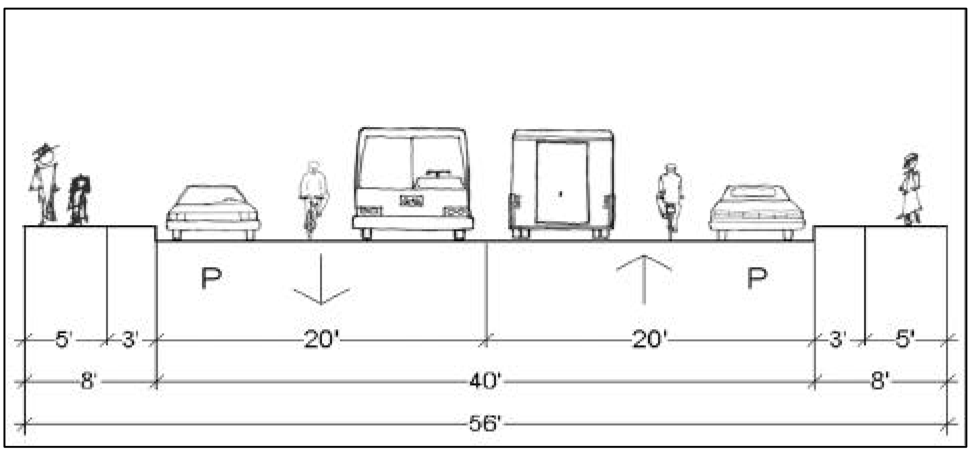
Little Falls

Newark-Pompton Pike

Bradford Ave. – Main Street (631)

Mile post 4.0 – 4.4

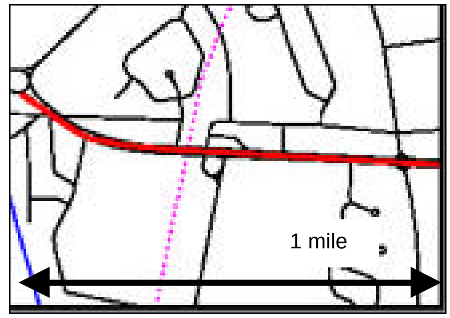


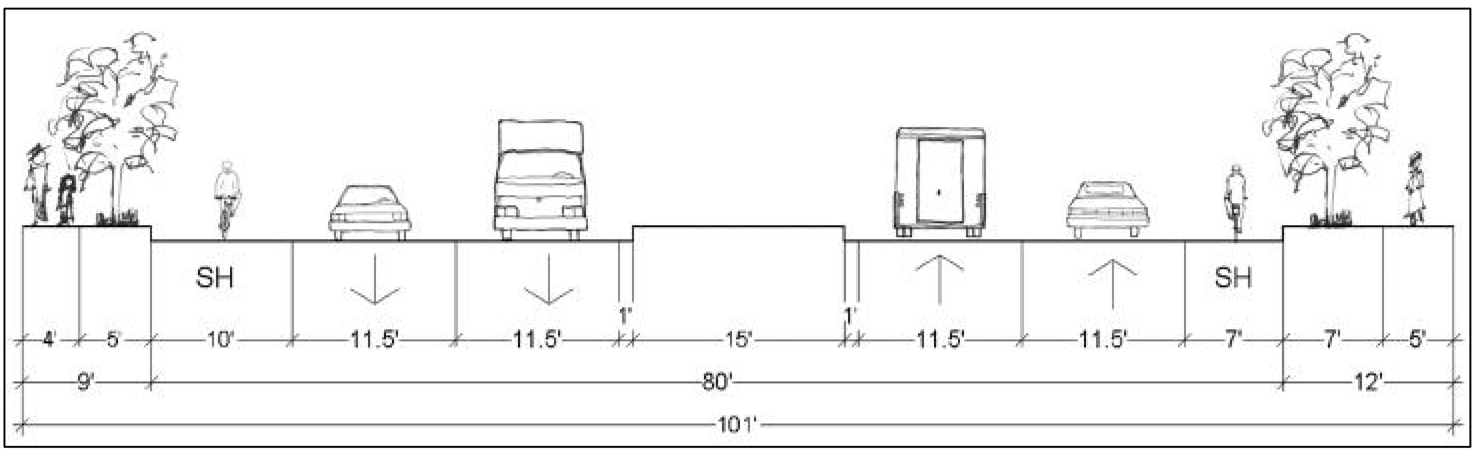


Present Suitability as Main Street	3.03
Future Potential for Main Street	4.02
Functional Class	Urban Principal Arterial
Volume	19,496 (2002)
Volume/Lane	9748
Posted Speed Limit	35 mph
Peak Hour Average Speeds	24-40 mph
State Plan Center	No
Land Use	Residential, Commercial
Truck Route	In State
Designated Bus Stops	Yes
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	78’, 4 Lanes, No Shoulder

Succasunna

Route 10
Main St. – Hillside Ave.
Mile post 0.5 – 0.9

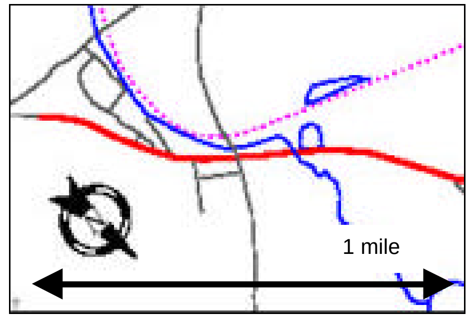


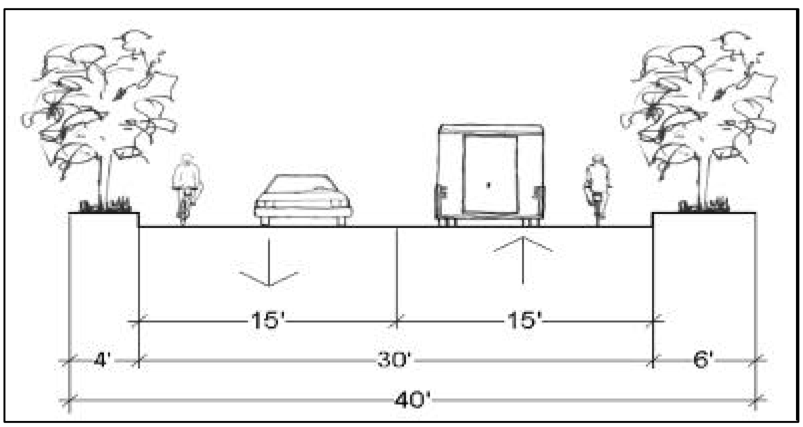


Present Suitability as Main Street	2.95
Future Potential for Main Street	3.12
Functional Class	Urban Principal Arterial
Volume	32,516 (2002)
Volume/Lane	8129
Posted Speed Limit	50 mph
Peak Hour Average Speeds	15-41 mph
State Plan Center	No
Land Use	Commercial
Truck Route	In State
Designated Bus Stops	No
Access Level	Right Turn and Jughandle
Desirable Typical Section Peak	114’, 4 Lanes, Shoulder, Divided
Notes:	Left turn bays in median

Lafayette

Route 15
Morris Farm Rd. (659)
Mile post 17.3 – 17.4



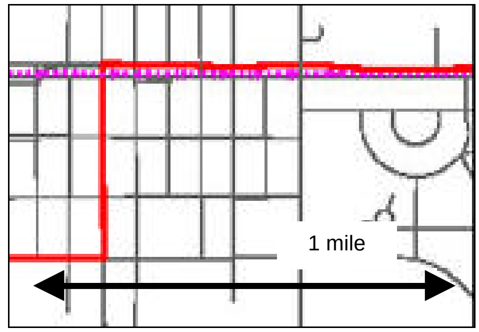


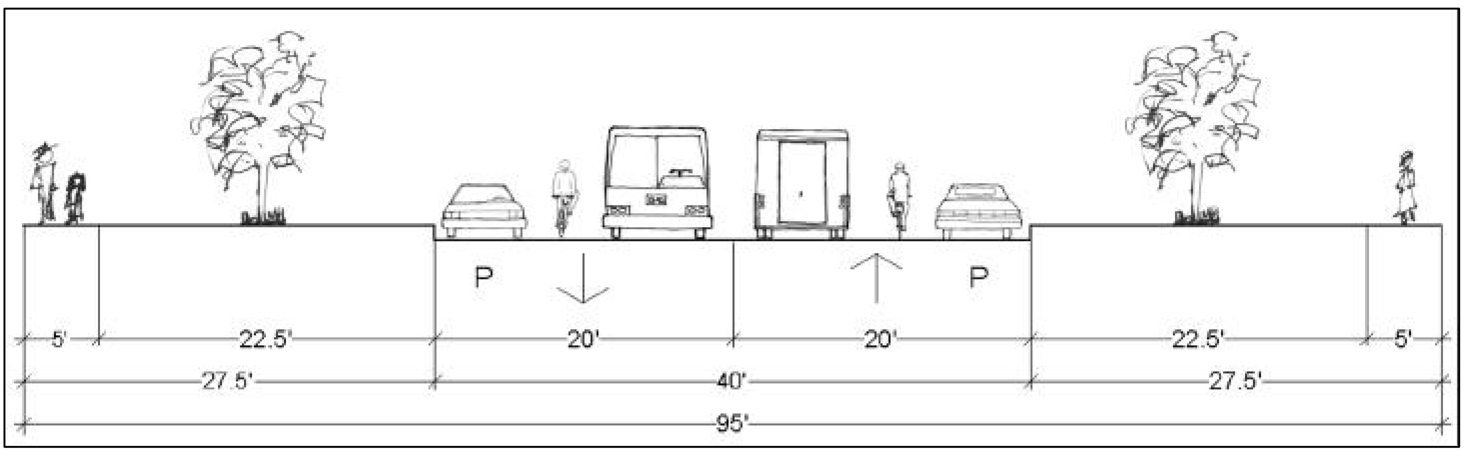
Present Suitability as Main Street	2.90
Future Potential for Main Street	3.49
Functional Class	Rural Principal Arterial
Volume	17,864 (2002)
Volume/Lane	8932
Posted Speed Limit	35 mph
Peak Hour Average Speeds	33-40 mph
State Plan Center	No
Land Use	Residential
Truck Route	In State
Designated Bus Stops	No
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	102’, 4 Lanes, Parking

Woodbine

Washington Ave.

Washington Ave. – Dehirsch Ave.(557)
Mile post 9.2 – 9.6





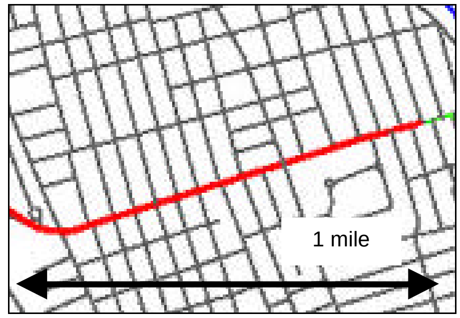
Present Suitability as Main Street	2.88
Future Potential for Main Street	3.86
Functional Class	Rural Major Collector
Volume	N/A
Volume/Lane	N/A
Posted Speed Limit	35 mph
Peak Hour Average Speeds	N/A
State Plan Center	No
Land Use	Residential, Institutional
Truck Route	No 102” / 53’
Designated Bus Stops	Yes
Access Level	None
Desirable Typical Section Peak	None

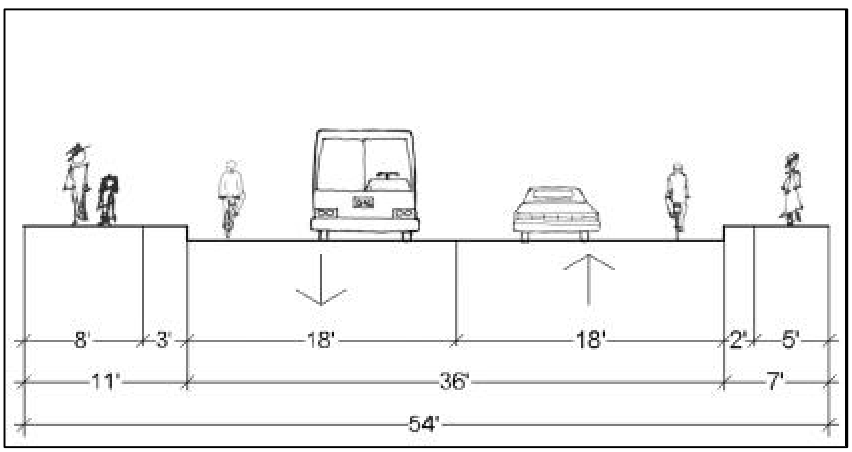
Kearny/North Arlington

Belleville Pike

Schuyler Ave. – Kearney Ave.(697)

Mile post 4.2 – 4.7





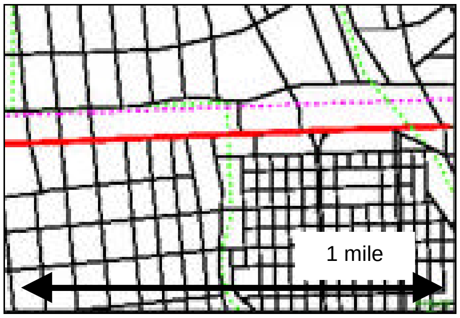
Present Suitability as Main Street	2.86
Future Potential for Main Street	4.61
Functional Class	Urban Principal Arterial
Volume	19,547 (2000)
Volume/Lane	9773
Posted Speed Limit	30 mph
Peak Hour Average Speeds	11-26 mph
State Plan Center	Urban Complex
Land Use	Residential, Commercial
Truck Route	In State
Designated Bus Stops	Yes
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	78', 4 Lanes, No Shoulder

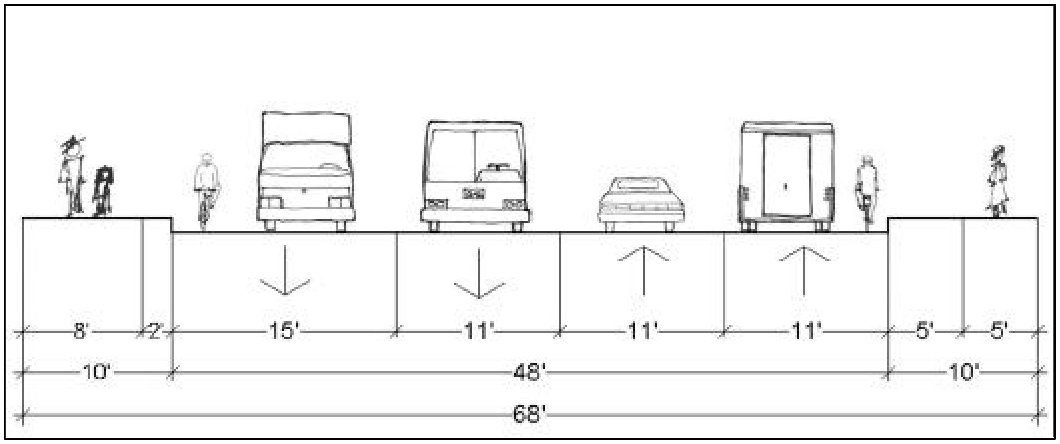
Neptune Township

Main Street

Corlies Ave. – Springwood Ave.

Mile post 7.7 – 8.0





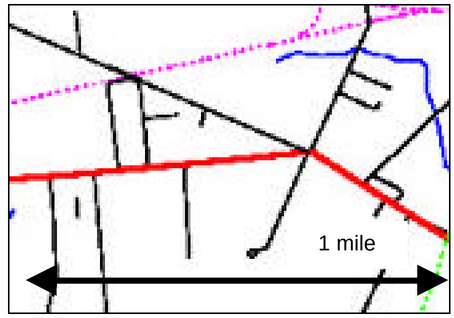
Present Suitability as Main Street	2.76
Future Potential for Main Street	3.73
Functional Class	Urban Minor Arterial
Volume	20,762 (2002)
Volume/Lane	5191
Posted Speed Limit	30 mph
Peak Hour Average Speeds	19-29 mph
State Plan Center	No
Land Use	Commercial
Truck Route	In State
Designated Bus Stops	Yes
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	102', 4 Lanes, Parking

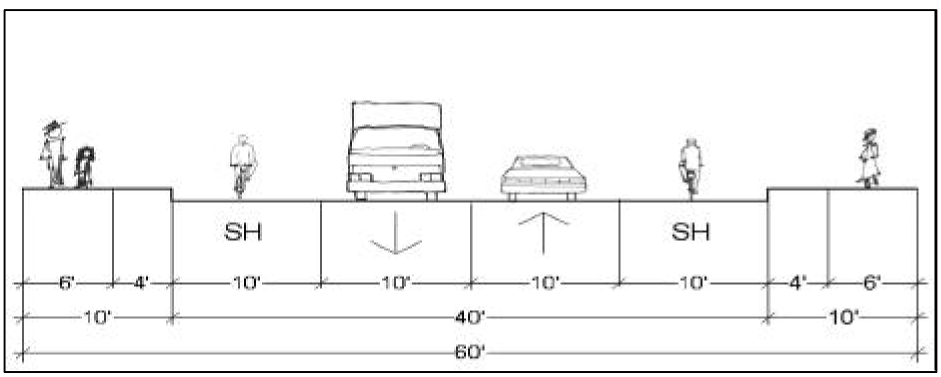
Tuckahoe

Route 50

Mt. Pleasant Rd.(664) – Route 49

Mile post 6.7 – 6.8





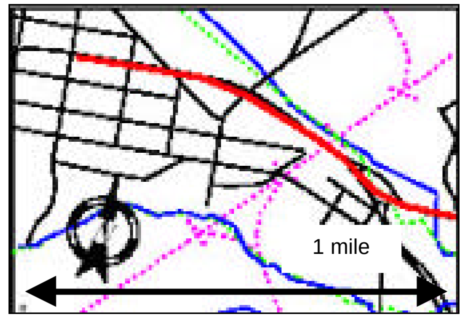
Present Suitability as Main Street	2.68
Future Potential for Main Street	4.20
Functional Class	Rural Minor Arterial
Volume	11,038 (2002)
Volume/Lane	5519
Posted Speed Limit	30 mph
Peak Hour Average Speeds	32-35 mph
State Plan Center	Town Center
Land Use	Residential
Truck Route	In State
Designated Bus Stops	No
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	102’, 4 Lanes, Shoulder

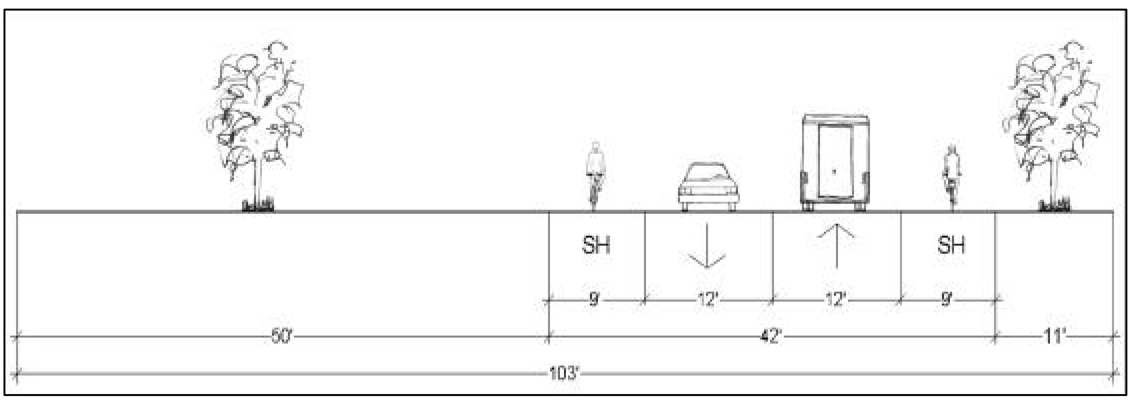
Lakehurst

Route 70

Rose Street – Manapaqua Ave.

Mile post 43.9 – 44.2

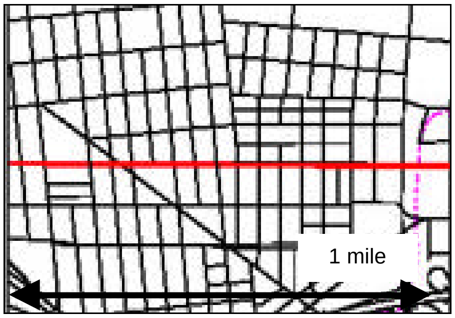


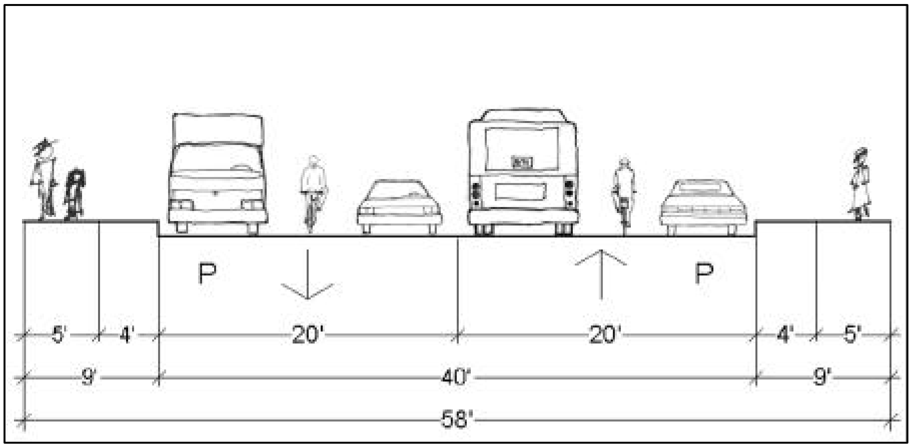


Present Suitability as Main Street	2.59
Future Potential for Main Street	3.54
Functional Class	Urban Principal Arterial
Volume	19,984(2002)
Volume/Lane	9992
Posted Speed Limit	45 mph
Peak Hour Average Speeds	30-55mph
State Plan Center	Town Center
Land Use	Residential, Commercial
Truck Route	In State
Designated Bus Stops	No
Access Level	Right Turn and Jughandle
Desirable Typical Section Peak	114’, 4 Lanes, Shoulder, Divided
Notes:	Roadway soon to be widened to four lanes using right of way at left

Camden

Broadway
Mt. Vernon Street – Mickle Blvd
Mile post 33.6 – 34.2



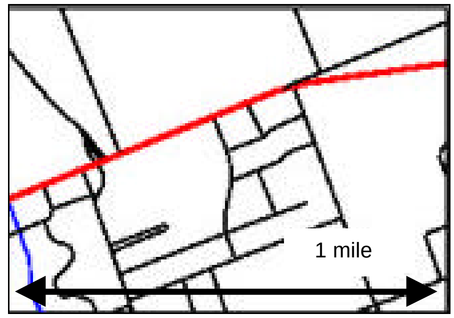


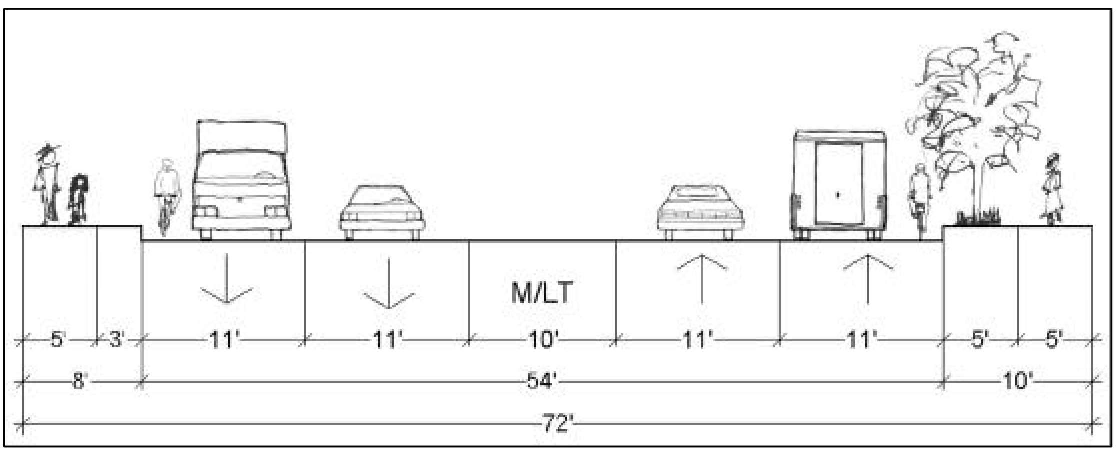
Present Suitability as Main Street	2.54
Future Potential for Main Street	5.57
Functional Class	Urban Minor Arterial
Volume	8,314 (2000)
Volume/Lane	4157
Posted Speed Limit	25 mph
Peak Hour Average Speeds	31-32mph
State Plan Center	Urban Center
Land Use	Industrial, Residential, Commercial
Truck Route	In State
Designated Bus Stops	Yes
Access Level	None
Desirable Typical Section Peak	None

Hammonton

White Horse Pike

Route 206/54 – Main Road/Broadway
Mile post 29.7 – 30.2



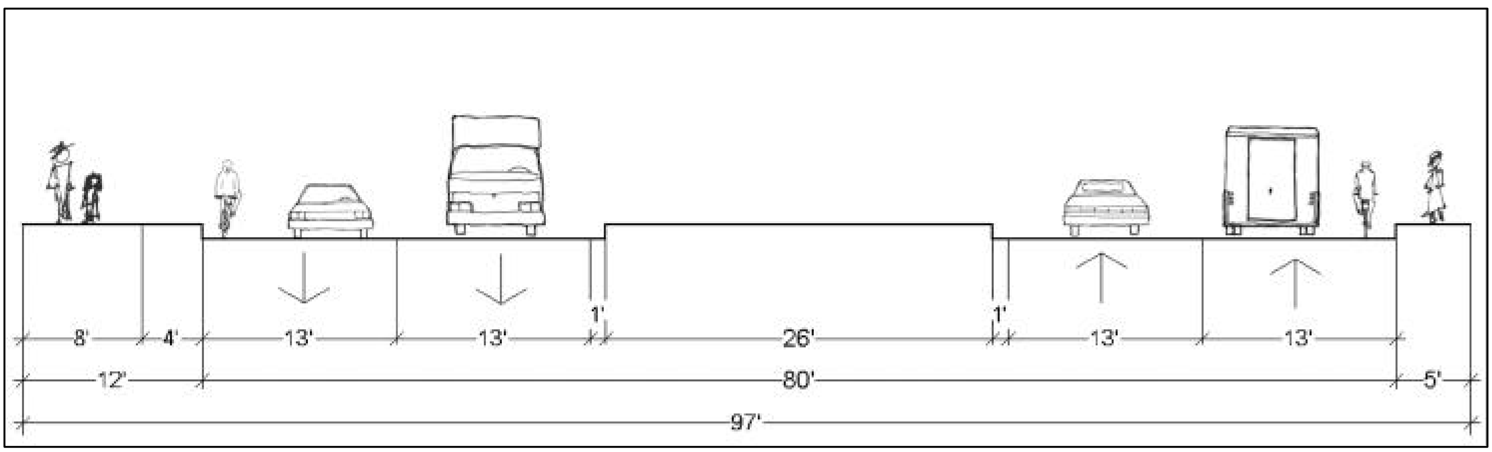


Present Suitability as Main Street	2.46
Future Potential for Main Street	3.11
Functional Class	Urban Principal Arterial
Volume	20,211(2002)
Volume/Lane	5053
Posted Speed Limit	40 mph
Peak Hour Average Speeds	33-45 mph
State Plan Center	No
Land Use	Commercial
Truck Route	In State
Designated Bus Stops	No
Access Level	Driveway
Desirable Typical Section Peak	92', 4 Lanes, Parking

Jersey City

Route 139

Bevan St.– Palisades Ave.
Mile post 0.2 – 0.7



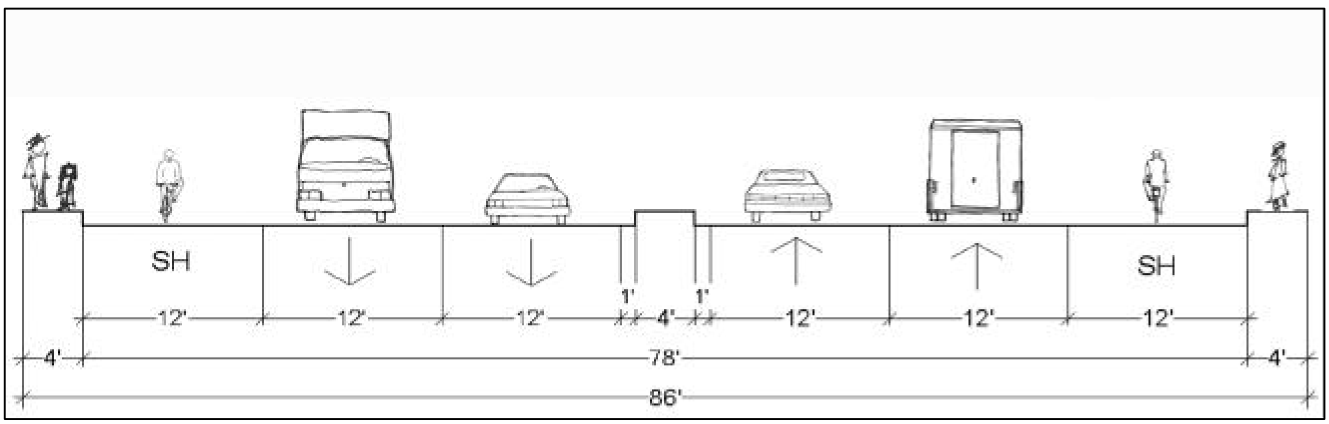
Present Suitability as Main Street	2.45
Future Potential for Main Street	3.60
Functional Class	Urban Principal Arterial
Volume	36,418 (2002)
Volume/Lane	9104
Posted Speed Limit	35 mph
Peak Hour Average Speeds	10-32 mph
State Plan Center	Urban Complex
Land Use	Residential, Commercial
Truck Route	In State
Designated Bus Stops	No
Access Level	Right Turn and Jughandle
Desirable Typical Section Peak	148', 8 Lanes, No Shoulder, Divider
Notes:	Roadway constructed on a bridge over Route 139 lower level

Long Branch

Ocean Blvd.

Brighton Ave. – N. Bath Ave.

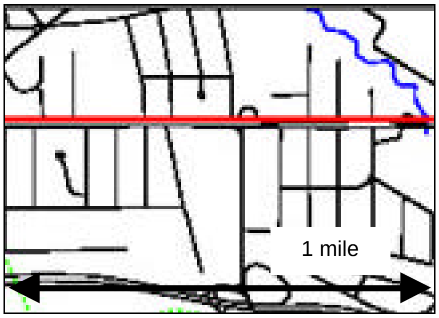
Mile post 0.2 – 0.8

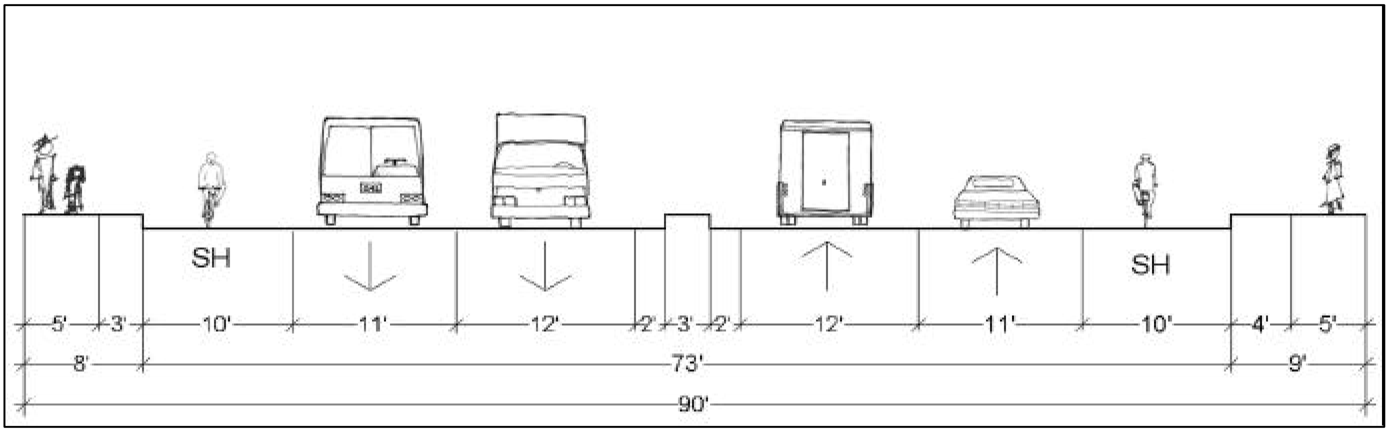


Present Suitability as Main Street	2.37
Future Potential for Main Street	2.78
Functional Class	Urban Minor Arterial
Volume	14,518 (2002)
Volume/Lane	3629
Posted Speed Limit	40 mph
Peak Hour Average Speeds	22-55 mph
State Plan Center	Regional Center
Land Use	Residential
Truck Route	In State
Designated Bus Stops	No
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	102’, 4 Lanes, Shoulder
Notes:	Beach is one block to right

Lawrenceville

Brunswick Ave.
Slack Ave. – Graff Ave.
Mile post 0.5 – 1.1



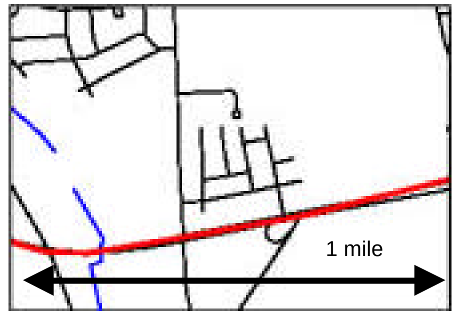


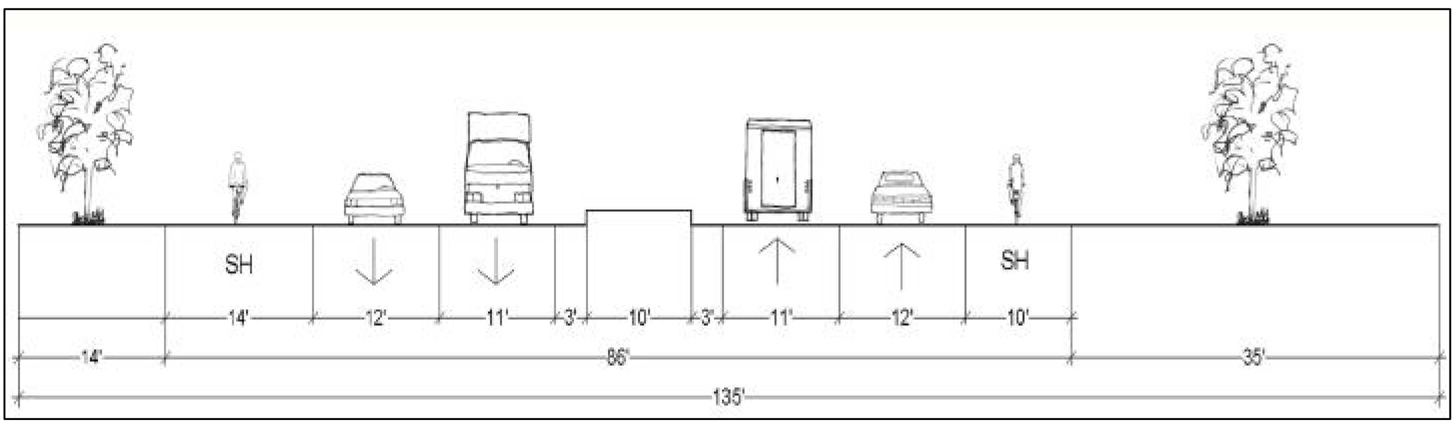
Present Suitability as Main Street	2.32
Future Potential for Main Street	3.20
Functional Class	Urban Principal Arterial
Volume	30,514 (2002)
Volume/Lane	7628
Posted Speed Limit	40 mph
Peak Hour Average Speeds	N/A
State Plan Center	No
Land Use	Commercial
Truck Route	In State
Designated Bus Stops	Yes
Access Level	Full Control
Desirable Typical Section Peak	148', 6 Lanes, Shoulder, Divided
Notes:	Median is mountable

Brick

Route 70

Brick Blvd. –Chambers Bridge Road
Mile post 54.4 –54.6

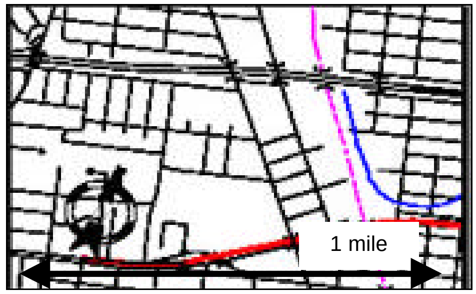


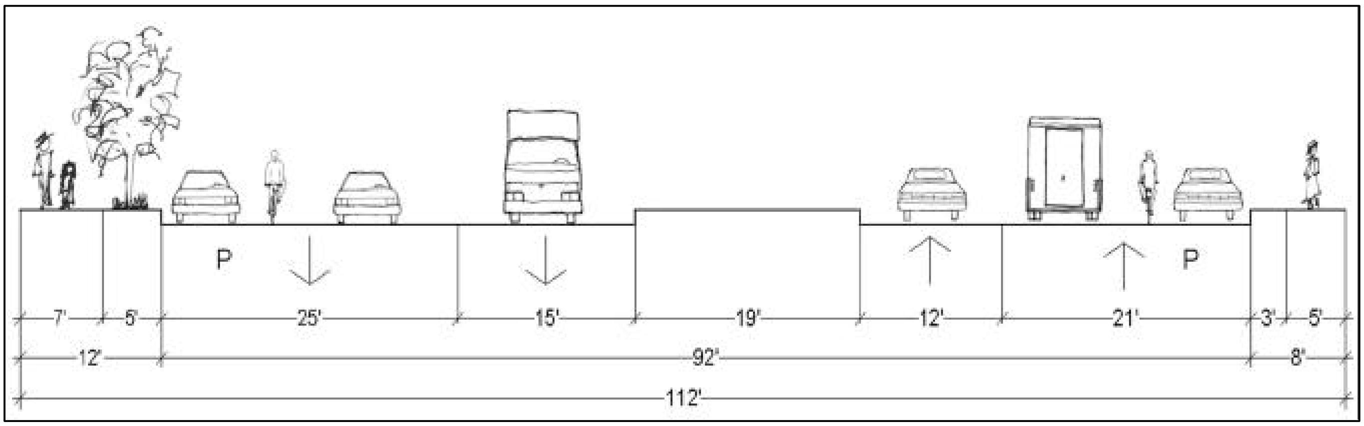


Present Suitability as Main Street	2.05
Future Potential for Main Street	2.34
Functional Class	Urban Principal Arterial
Volume	29,923 (2002)
Volume/Lane	7498
Posted Speed Limit	50 mph
Peak Hour Average Speeds	28-36 mph
State Plan Center	No
Land Use	Commercial
Truck Route	No 102’ / 53”
Designated Bus Stops	No
Access Level	Right Turn and Jughandle
Desirable Typical Section Peak	114’, 4 Lanes, Shoulder, Divided

Clifton

Piaget Ave., NJ 46
Paulison Ave. (Rt. 618) – Route 628
Mile post 61.7 – 63.3





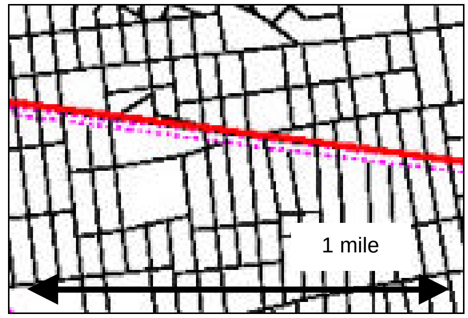
Present Suitability as Main Street	1.89
Future Potential for Main Street	2.55
Functional Class	Urban Principal Arterial
Volume	61,756 (2002)
Volume/Lane	15,439
Posted Speed Limit	35 mph
Peak Hour Average Speeds	2-55 mph
State Plan Center	Town Center
Land Use	Residential, Park
Truck Route	In State
Designated Bus Stops	No
Access Level	Right Turn and Jughandle
Desirable Typical Section Peak	148', 6 Lanes, Shoulder, Divided
Notes:	Left turn bays in median

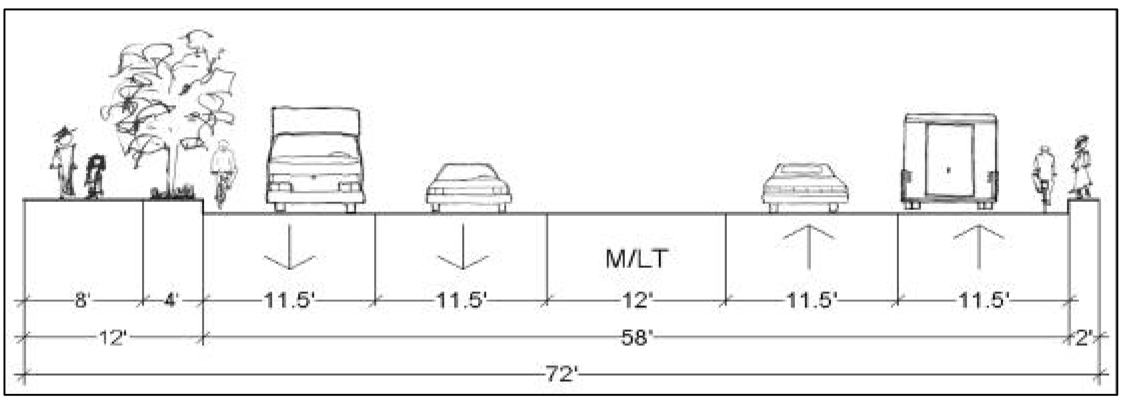
Newark

McCarter Highway

Pointer Street – Lafayette Street

Mile post 0.9 – 2.0





Present Suitability as Main Street	1.86
Future Potential for Main Street	2.21
Functional Class	Urban Principal Arterial
Volume	62,022 (2002)
Volume/Lane	15,505
Posted Speed Limit	35 mph
Peak Hour Average Speeds	1-21 mph
State Plan Center	Urban Center
Land Use	Industrial, Commercial
Truck Route	In State
Designated Bus Stops	No
Access Level	Driveway with Provision for Left-turn Lane
Desirable Typical Section Peak	124’, 6 Lanes, Shoulder, Divided
Notes:	Elevated train tracks at right

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