

DEVELOPMENT OF A PLAN FOR SCHOOL STREET EXTENSION



FREEPORT, MAINE

Prepared For:

**The Portland Area Comprehensive Transportation System (PACTS)
and
Town of Freeport**

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Town of Freeport, Maine

1.0 Introduction

The Town of Freeport has spent considerable effort planning for the future of the Freeport Village, including the Bow Street area extending from the village center to the Mast Landing School. In July 2003, the Village Planning Committee prepared a report that developed a vision for the village, as well as recommendations to help implement that vision through policy changes in the Comprehensive Plan, zoning regulations, and other town ordinances. Most recently in the town's implementation of this report, the Town Council approved significant zoning changes to adopt a Village Mixed-Use Zone encompassing the project area.

Within the Village Planning Committee Report, Section IV specifically deals with pedestrian use and transportation issues by developing a goal to *“encourage the extension of School Street to Bow Street. The roads should be built to be pedestrian and bicycle friendly and any road crossings through the gully should be constructed so that pedestrians travel under the road isn't prohibited.”* This action was also recommended in the 2005 Comprehensive Transportation Study prepare for the Town by Milone & MacBroom, Inc. and Eaton Traffic Engineering.

Bow Street corridor is a heavily traveled roadway servicing the northeastern areas of the town, as well as a being a connector road to portions of Brunswick to the north. In addition to this traffic, the Mast Landing School is located to the northeast of Freeport Village, contributes significant volumes to the local neighborhood and the Bow Street corridor. However, the traffic flow is competing with the neighborhood appeal of the Bow Street area, especially the mixed residential uses. Bow Street Market is a piece of the daily life of residents, where friends and families often run into one another. The recent donation of the Leon Gorman Park provides a significant pedestrian connection and open space park between Mast Landing School, Bow Street and the village center. The last remaining component of truly connecting Bow Street with the surrounding area on both sides of the gully is the extension of School Street to Bow Street.

Milone & MacBroom, Inc. and Eaton Traffic Engineering, building on our past transportation experience in town was engaged by the Portland Area Comprehensive Transportation System (PACTS) to work with the Town to refine this vision of the School Street extension, evaluate the traffic impacts of a new connection between neighborhoods, and develop a roadway that best traverses the natural gully and Leon Gorman Park.

Our approach to this project was to blend the new roadway into the environment with natural design elements, connecting the pedestrian facilities along the roadways, and allowing the village to grow into the vision set forth in the Village Planning Committee Report. The study was conducted in three phases: analyzing traffic conditions and identifying the future volumes if School Street were to be extended; conducting a series of public participation meetings to discuss the issues associated with the possible School Street extension; and developing several alternatives for the extension and preparing a preliminary plan for the desired alternative.

2.0 Traffic Impacts

The proposed extension of School Street to Bow Street could present several opportunities in terms of having positive impacts on traffic conditions. First, the extension would provide a connection to lower Bow Street for visitors traveling to Wolf's Neck Park which avoids the critical intersection of Main Street at Bow Street. Second, it would be a convenient access route to the Mast Landing School, which would again avoid the intersection of Main Street at Bow Street. Third, it would provide a convenient access to I-295 for residents of lower Bow Street, Flying Point Road and Pleasant Hill Road (where significant residential growth is anticipated) , which would again avoid the critical intersection of Main Street at Bow Street.

To evaluate these potential positive impacts, a detailed data collection program was developed for this study. First, directional (i.e., traffic counts for each direction on the roadway) automatic traffic recorder counts were conducted on Bow Street west of the Bow Street Market, and on School Street between Middle Street and Royal Street. This data would provide both actual volumes on the streets but also provide information on the patterns of traffic flow throughout the day.

Second, manual turning movement counts were conducted at four key intersections in the study area:

Main Street @ School/Elm Street

Main Street @ Bow Street

School Street @ Park Street

Park/South Street @ Bow Street

The traffic counts on the two Main Street intersections were conducted in early August 2008 from 3:00 – 6:00 PM on days that were overcast or lightly raining. Past experience in Freeport traffic studies has indicated that these types of days generally attract greater numbers of tourists to the downtown. The traffic counts on Main Street also included pedestrian counts, where significant volumes were observed.

The traffic counts at the Park Street intersections were conducted later in August prior to Labor Day and pedestrian volumes were not an issue at these locations. The primary purpose of these counts was to look at the traffic patterns that would help quantify the extent to which local residents were using a School Street/Park Street/Bow Street routing to avoid traveling through the Main Street at Bow Street intersection.

Figure 1 in the Appendix presents the results of both the automatic traffic recorder counts on School Street and Bow Street, and the PM peak period manual turning movement counts on Main Street at Bow and School/Elm and Park Street at School and Bow Street.

The manual traffic counts offered the opportunity to observe the dynamics of traffic flow in the downtown during the peak tourist season. Pedestrian traffic at the two intersections on Main Street clearly controlled the overall traffic flow in the downtown. In essentially all cases, vehicle drivers yielded the right-of-way to pedestrians, and for the most part, pedestrians used the marked crosswalks. In addition, for the most part, pedestrians tended to cross in groups rather than one at a time, which would tend to help minimize inhibition of traffic flow.

At the Park Street intersections, it was very clear that School Street and Park Street are used by local drivers as a way to avoid the intersection of Main Street at Bow Street. In addition, the traffic count data at Park/South at Bow Street clearly indicated that local drivers entering Freeport from the south used West Street (at Main Street) to travel to South Street and avoid the Main Street at Bow Street intersection.

To provide a base from which to evaluate the impact of a School Street Extension, daily traffic volumes in the downtown were estimated based upon both MDOT traffic data and the counts conducted for this study. These estimated 2008 daily (summer – peak season) traffic counts are presented in Figure 2 in the Appendix.

The next step in the analysis was to evaluate current traffic conditions in terms of capacity and level of service. To accomplish this, the computer software program Synchro/SimTraffic, simulates traffic flow and include the impact of pedestrian crossings at unsignalized intersections, which is the situation at both Main at Bow Streets and Main at School/Elm Streets. The analysis indicated that both the intersections of Main/Bow and Main/School/Elm Streets operate very poorly and that traffic on Main Street backs up substantially to the point than traffic is backed up onto Mallet Drive (which was observed in the field). Analysis of the traffic volumes without pedestrians indicated that traffic flow would operate at very good levels of service with minimal back-ups.

The extension of School Street to Bow Street would promote its use both to local drivers traveling to lower Bow Street and drivers unfamiliar with the area (assuming revised way-finding signage) and help decrease traffic at the intersection of Main Street at Bow Street. To help quantify the impact of the proposed extension a projection of the diversion of traffic was developed and is presented in estimated 2008 daily traffic in Figure 3 (See Appendix).

As the volume projections/estimates in Figure 3 indicate, the change in traffic flow is significant but not dramatic – at least in the short term. Over time, however, it is expected that the extension of School Street could change travel patterns more extensively, particularly as increased residential development occurs in the Flying Point/ Pleasant Hill Road area.

Along with the impact of the School Street extension project, additional actions could be taken to help reduce the amount of traffic traveling through the Main Street at Bow Street intersection. Perhaps one of the most critical would be the diversion of traffic traveling on Bow Street northbound to a Middle Street/School Street routing to Main Street and Mallet Drive/ I-295. this action would reduce the right turn demand on Bow Street at Main Street and allow an expansion of the easterly sidewalk on Bow Street (through elimination of the right turn lane on Bow Street) which is inadequate for existing pedestrian demand. Further encouragement of a Depot Street to West Street routing for traffic destined for Route 1 southbound or I-295 at Exit 20 would also decrease traffic at the key intersection of Main Street at Bow Street.

3.0 Neighborhood Vision

A public process was developed to engage the residents and businesses of the School Street neighborhood in a dialogue to learn of their concerns and issues in connection with the possible extension of School Street to Bow Street. The process began with the formation of an Ad Hoc Committee to meet and discuss the best way to engage the neighborhood. This meeting was held on September 9, 2008. Participants in this initial meeting felt it was necessary to actively engage the neighborhood in the process and individual invitations would be necessary to promote the interaction.

Based on this initial meeting, a series of workshops were scheduled. In order to bring the process to the neighborhood, the Hilton Garden Inn on the corner of School and Park graciously offered their facilities for a meeting place.

The first meeting was held on October 30, 2008. Invitation postcards were sent to area residents and business owners and approximately 50 people attended the meeting. The purpose of this meeting was to listen to the concerns regarding traffic flow and the potential growth of the neighborhood. Many individuals had specific comments with respect to their own issues. The predominant concerns were excessive speed, the legitimacy of the need for the connection, and safety of pedestrians.

The following is a summarized list of items and questions raised by those attending the meeting.

- Illegal and legal parking issues along School Street at Bow Street
- Turning radius at School & Bow Streets (future)
- Turning radius at School & Main Streets (current and future)
- No widening on Park Street north of School Street
- Speed on School St. – current and future
- Lighting on School St. – current and future
- Parking Garage impacts on traffic movements
- Sharp curve on Bow Street
- Train station impacts on traffic movements
- Environmental impact
- Traffic pattern changes
 - One-way circulation of School Street around to Bow Street
 - Diversion or traffic patterns to Upper Mast Landing
- Sidewalks – neighborhood wide concern, connectivity
- Adjacent land uses – assisted living facility on School Street/Park Street
- Balance new roads vs. maintenance \$\$ (including trash/cleanup)
- Drainage along Bow Street from Torrey Hill runoff
- Surface Materials – no brick sidewalks, too slippery
- Sight distance – vegetation clearing and maintenance
- Landscape – maintain existing vegetation, new landscape plan
- Connections to Gorman Park from Park Street
- Traffic calming and safety at School Street and Bow Street (future)
- Noise impact and traffic on Park St. and Gorman Park
- Geometry/grade at School Street and Main Street
- Northbound Elm Street turning movement impacts
- Traffic control
- What problem is being solved? Tourist or local commuter (Freeport/Brunswick)

- Do we have a solution trying to match a problem?
- Design for vehicular connection versus a pedestrian/bicycle only route
- Solve Main Street pedestrian conflicts – how are they related?

A second meeting was held on December 17, 2008 to discuss the need for the School Street Extension and to present the predicted changes in the traffic patterns if School Street were to be extended to Bow Street. The discussion centered on traffic flow and the need for the extension. Below is an additional list of items addressed by the participants.

- Bow Street
 - Congestion at Main Street
 - Pinch-point
 - At-grade RR Crossing
 - Gorman Park
- Visitor's circle to find space closest to shopping
- Accident history at Bow St. & Main St.
- Do not want more traffic on School St.
- Road built for tourists
- Need for infrastructure connection
- How many days/year is traffic a problem?
- Open space disturbance
- Wetland impact
- Visual impact
- Impact of train = reduction of traffic?
- Need for LL Bean parking directional signage
- Speed control
- Alternate pedestrian route to Gorman Park
- Is there a plan "B"?
- Impact of trucks to expanded Bow Street Market?
- Police and Fire – comments?

4.0 Alternative Concepts and Preliminary Design

Based on the public process, several alternative roadway layouts were developed to accommodate vehicular traffic in combination with bicyclists and pedestrian as shown on the enclosed drawings. In addition, several structure types were developed to bridge the gully adjacent to the Leon Gorman Park.

4.1 *Roadway Improvement Alternate A.*

This concept is based on two 11-foot wide travel lanes, two 2-foot shoulders, and an 8-foot wide combination bicycle and pedestrian path for a total width of 34 feet. Also included is a planting strip with street trees, centerline colored traffic calming devices and a pedestrian connection to Leon Gorman Park.

4.2 *Roadway Improvement Alternate B.*

This concept is based on two 11-foot wide travel lanes, two 7-foot bike lanes/shoulders, for a total width of 36 feet. Also included is a planting strip with street trees, centerline colored traffic calming devices and a pedestrian connection to Leon Gorman Park.

4.3 *Roadway Improvement Alternate C.*

This concept is based on two 11-foot wide travel lanes, two 7-foot bike lanes/shoulders, two 5-foot sidewalks, separated from the road by a five foot planting strip for a total width of 56 feet. (In the bridge area, the total width is 46 feet). Also included are street trees, centerline colored traffic calming devices and a pedestrian connection to Leon Gorman Park.

In response to the preference of the meeting attendees, ***Alternate C-1*** was developed with the elimination of a sidewalk on one side of the road. This is the recommended alternate. In addition, a plan is included showing only a bicycle/pedestrian path with a prefabricated pedestrian bridge over the gully.

4.4 *Structure Types*

There are several means of crossing the gully at the current end of School Street and they are shown on the enclosed drawings and described as follows. (See Appendix for Drawings)

Steel Girder Bridge - A single span approximately 65 in length supported on concrete abutments, with wingwalls to provide 12 feet of clearance for pedestrians under the bridge.

Precast Concrete Arch - A segmented arch structure – 48 foot span and 12 foot rise approximately 60 feet in length with concrete footings and textured, colored concrete wingwalls. Pedestrian clearance would be 10 feet in height.

Precast Concrete Box Culvert - A 12 foot by 24 foot concrete box culvert approximately 76 feet in length with concrete wing walls and earthen fill slopes. This structure will only also passage of drainage, no pedestrian access. This alternative would require relocation to the sanitary sewer line that parallels the water course in this location.

4.5 *Additional Traffic Calming Improvements*

To provide connectivity to the neighborhood, additional improvements are recommended beyond the limits of the School Street Extension. (See Appendix for Drawings)

- Enlarge the curb radius at the intersection of School Street and Main Street to permit easier right hand turns from School to Main. A utility pole will need to be relocated.
- Provide sidewalks on both sides of School Street for the entire length.
- Provide traffic calming devices by the use of colored/textured center line strips at appropriate intervals on School Street and Park Street.
- Provide traffic calming at the intersection of School Street and Park Street by the use of a 4-way stop, and/or textured/colored pavement.
- Construct a sidewalk on Middle Street.

- Utilize the railroad crossing on School Street as a traffic calming device.

These alternatives were presented at a third public meeting held on February 9, 2009 at the Hilton Garden Inn. After discussion by the participants, the consensus was the Roadway Improvement Alternate C, with the elimination of one sidewalk, would be more suitable than the other alternatives presented. It was also agreed an alternative would be prepared showing only a bicycle and pedestrian extension through to Bow Street should the Town decide that the vehicular crossing was not desired. (See Appendix for Drawings)

5.0 Preliminary Cost Projections

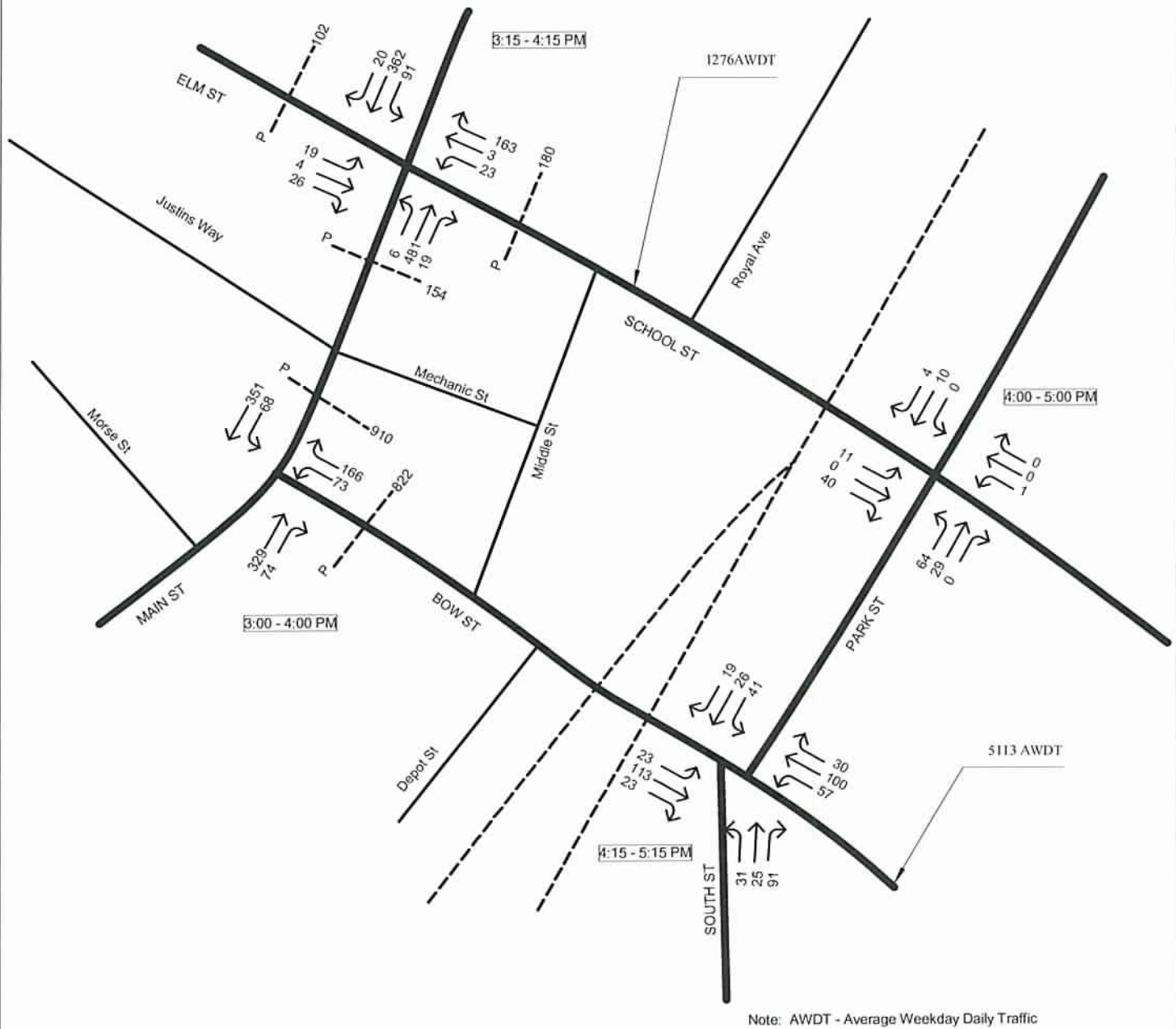
The following preliminary opinions of probable cost are for comparison of alternatives only and will need to be refined based on additional field survey and final design:

| | |
|-------------------------|-----------|
| Roadway Alternate A - | \$340,000 |
| Roadway Alternate B - | \$350,000 |
| Roadway Alternate C - | \$390,000 |
| Roadway Alternate C-1 - | \$370,000 |
| Steel Girder Bridge - | \$850,000 |
| Concrete Arch Bridge - | \$530,000 |
| Precast Box Culvert - | \$420,000 |

The total cost of the project is the combination of one of the roadway alternatives with a structure type. It is noted there are minor differences in the roadway cost but substantial differences in the cost of the chosen structure types.

A stand alone bicycle/pedestrian path from School Street to Bow Street including a prefabricated pedestrian bridge would be approximately \$450,000.

APPENDIX



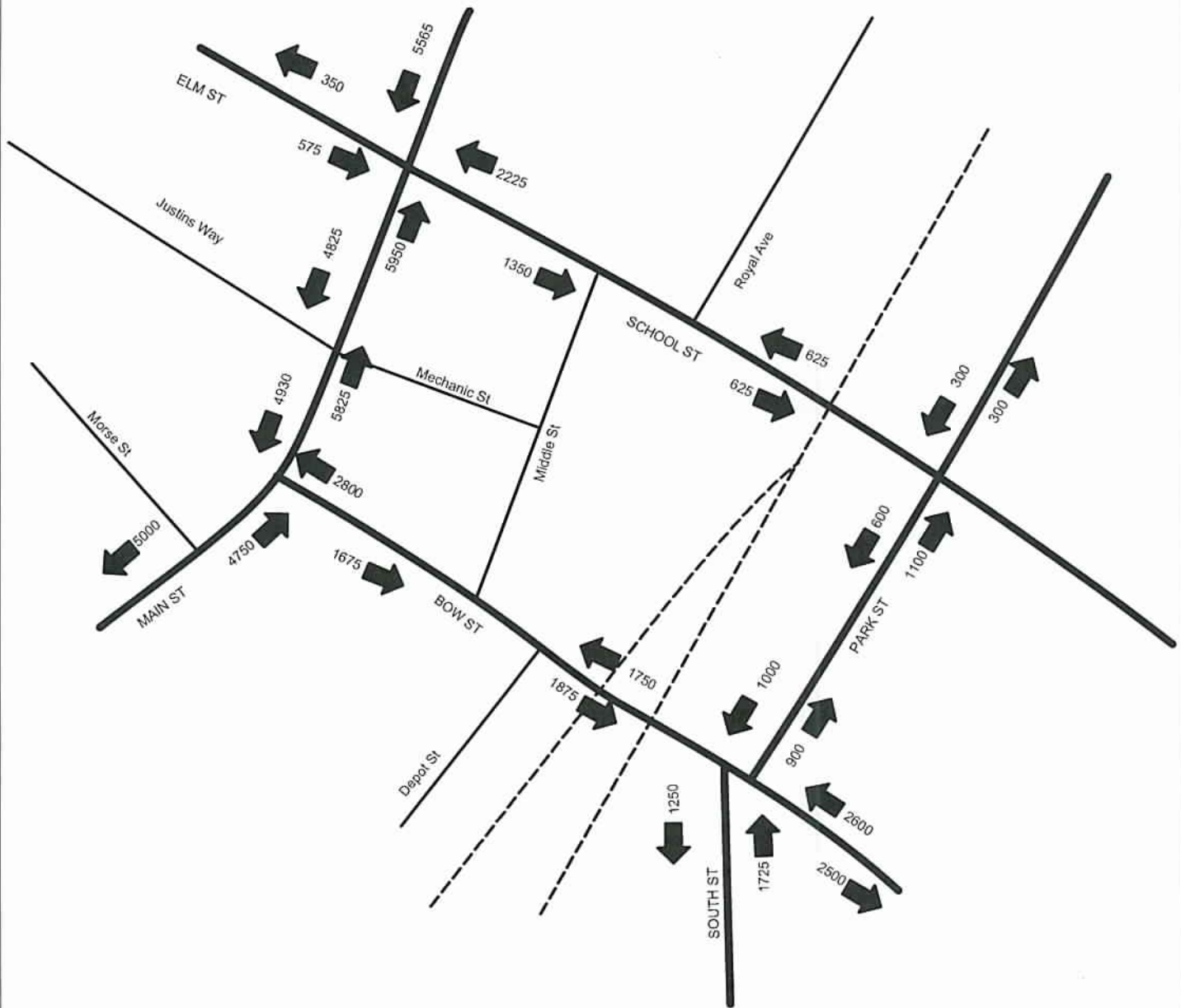


Figure 2

Estimated 2008 Daily Traffic Volumes - Existing Street System

SCHOOL STREET EXTENSION - FREEPORT, MAINE



EATON
TRAFFIC
ENGINEERING

67 Winter Street 55 - Topsham, Maine
(207) 725-9805 Fax (207) 373-9400

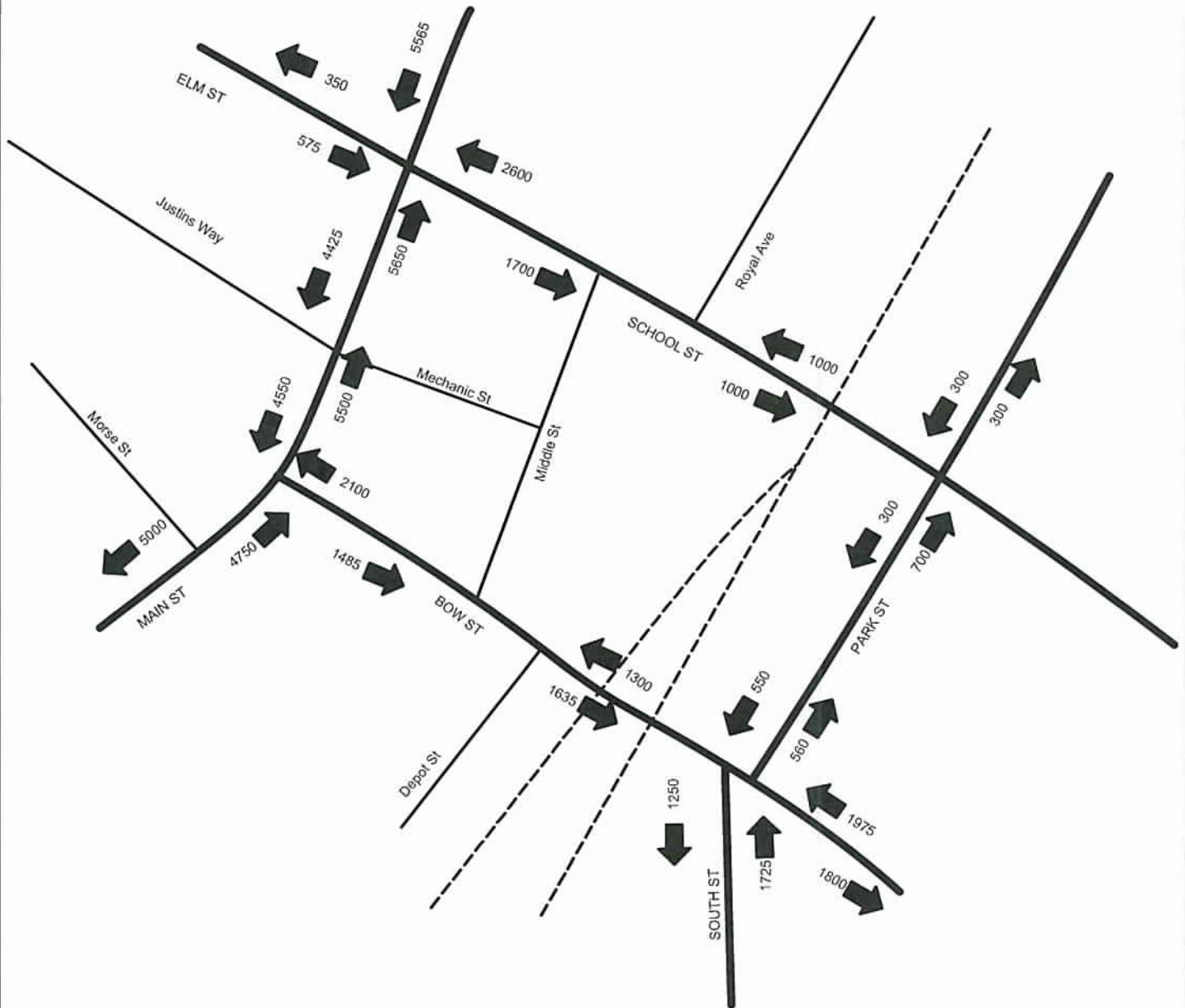


Figure 3
Estimated 2008 Daily Traffic Volume - With School Street Extension

SCHOOL STREET EXTENSION - FREEPORT, MAINE



EATON
TRAFFIC
ENGINEERING

67 Winter Street S5 - Topsham, Maine
(207) 725-6805 Fax (207) 373-9400