Livermore Falls Downtown Traffic Study

June 2005

Photo Courtesy of *Sun Journal*

Prepared for the Town of Livermore Falls and the Maine Department of Transportation by

AVCOG
WESTERN MAINE
Androscoggin Valley Council of Governments

Introduction

The Androscoggin Valley Council of Governments has prepared this study in response to a request for technical assistance from the Town of Livermore Falls. The 2002 Livermore Falls Comprehensive Plan indicates that "alternative ways to move regional traffic through town should be explored as a way to improve the safety of downtown" (Section I-4). This planning study addresses issues related to traffic flow and safety in downtown Livermore Falls.

This study identifies major traffic problems in downtown Livermore Falls and possible solutions for improving existing conditions. Input received at a public hearing on May 4, 2005, indicates that the majority of traffic flow problems in downtown Livermore Falls are on Depot Street and Main Street, south of Bridge Street. The most frequently cited problem area is the Depot Street and Main Street (Route 17) intersection in front of the Chuck Wagon restaurant, where through traffic must negotiate a 90-degree turn without stopping.

This study identifies and evaluates five concepts for altering downtown traffic flow. They range from a complete bypass of the downtown to modifications to the existing road alignment. The concepts are not intended to be used to develop actual construction projects. Further review and evaluation will be needed to adequately determine the feasibility, environmental and social impacts, as well as costs of any of these concepts. Additional recommendations which will benefit the community are included in this study, however, they are not specific to any one of the five concepts.

Funding for this project was provided by the Maine Department of Transportation. AVCOG would like to thank Norm Haggan, Mark Hume and Brian Keezer, from the MaineDOT Regional Office in Dixfield for their assistance with this study.

Land Uses

Existing land uses were reviewed to determine whether there are any land use issues the town should consider that might improve traffic flow through the downtown. Livermore Falls has both historic commercial development patterns as well as movement away from traditional locations. The traditional downtown area of Livermore Falls, much of which was reconstructed after the fires of 1898 and 1899, can be defined as Main Street and Depot Street to Park Street. This area contains a wide range of commercial and service-related land uses. Currently the center of retail and service activity, uses range from grocery and banks to medical facilities and specialty shops.

Individual lots adjacent to Main and Depot Streets are small, generally in the 5,000-10,000 square foot range with less than 100 feet of street frontage. The traditional downtown commercial area has no vacant land available for development. Some residential and underutilitized commercial properties have been converted to new commercial uses. There are several residential structures remaining in this area that could be converted to commercial uses. The downtown is somewhat unique in that the railroad crosses streets in the downtown three times within approximately 1,500 feet.

Because of lack of available land and other reasons, commercial development over the past 40 years has located outside the downtown area. Park Street is a mixed use area with residential, small commercial and institutional (schools and fire station) uses. Depot Street and Main Street are principally commercial. Pleasant Street and the local roads adjacent to Park, Main and Depot Streets are primarily comprised of high-density residential uses. Downtown Livermore Falls has little room for in-fill development

Problems

The following section outlines the problem areas and issues as identified by business owners, municipal officials and the general public at a public hearing held on May 4, 2005, AVCOG staff observations from a site visit on May 27, 2005 and input from MaineDOT Regional staff in Dixfield.

- Three primary problem areas:
  - Park Street (Route 17)/Pleasant Street (Route 133)/Upper Depot Street intersection
  - Depot Street/Main Street intersection
  - Bridge Street (Route 4)/Main Street (Route 17) intersection – right turns onto and off of the Bridge Street are difficult for trucks. The utility pole regularly gets clipped by the longer trucks and, recently, the traffic signals were taken down by a truck.

Downtown Revitalization

- A bypass route for trucks would improve traffic flow downtown but will impact local businesses by taking traffic and prospective shoppers away from the downtown
- Chamber of Commerce and Downtown Betterment Group are working to support local businesses and attract new businesses, they are concerned about the impact of through traffic as well as impacts of a bypass
- One downtown building was recently renovated and new private investments are occurring downtown. Owners don't want traffic to bypass their commercial properties

Enforcement

- Vehicular speed is a problem and a safety issue for pedestrians
- Vehicular speed is a problem on Park Street
- There is a high volume of trucks on Park Street, both day and night
- Residents expressed concerns about the need for more speed enforcement on Park Street, especially in the school zone

Engineering

- The stop lines at the Main Street/Bridge Street intersection traffic signal may be too close to the intersection, making it hard for motorists to give truckers sufficient room to negotiate right turns. There are times when motorists stopped at the red light in on-coming lanes need to back up to allow sufficient turning radius for trucks to negotiate right turns. The state is responsible for repairing the traffic signal, AD Electric maintains it for the state.
- Tractor trailers have gotten longer over the years and wheel bases have changed as a result. The longer trucks turn differently than they did 50+ years ago when the downtown roads were designed.

- Tight turning radii at the Chuck Wagon corner causes a weight shift of trailer truck loads. This results in uneven wear and rutting of the travel way to the extent that MaineDOT must repave this corner every 4-5 years.
- Sight distances at the Chuck Wagon corner are insufficient. Traffic traveling around the Chuck Wagon corner cannot see vehicles approaching the corner from the opposite direction.

Pedestrian

- The two crosswalks at Chuck Wagon corner are a safety concern. Pedestrians have to run to get across the street without being hit by vehicles and it is difficult to see on-coming traffic at the edge of the crosswalks on the restaurant side, especially in the Main Street crosswalk.
- Town has good crosswalk markings, will add in-street markers warning drivers to yield to pedestrians this year

Railroad

- Proximity of railroad crossings results in vehicles being "trapped" by train. On the morning of May 27, 2005, a southbound train blocked the Main Street and Depot Street crossings for 4 minutes, 45 seconds. There was a time delay of approximately one minute between when the train cleared the Main Street crossing and when it cleared the Depot Street crossing. Although the Bridge Street railroad crossing was blocked by this train, timing of the train at the Bridge Street crossing and length of time for that crossing was not calculated. Northbound traffic trapped by the train at the Bridge Street intersection was backed up to the Chuck Wagon restaurant (approximately 175 feet)
- Railroad crossings are rough and "jarring" for truckers

Safety

- Residents think that lighting at the Chuck Wagon corner is insufficient, the corner is dark, making it dangerous
- Trucks cross the centerline when turning at the Chuck Wagon corner
- Park Street is a school zone but there are no flashing yellow lights to warn motorists
- Children ride bicycles throughout the downtown (Park Street, Depot Street, Sewall Street, Cedar Street, etc.) but residents feel it is not safe for them because of the amount and speed of traffic

Traffic Volumes

- Residents perceive that truck traffic volumes have increased as percentage of overall through traffic
- In 1993, MaineDOT estimated that trucks made up 10-12% of the traffic coming in the downtown on Route 17. This represented roughly three times the expected volume of truck traffic for a rural community. Industry standards estimate that 3-4% of truck traffic is acceptable and to be expected in a rural community.
- Truck traffic downtown is constant throughout the day and night, with no apparent peaks
- Depot Street has heavy pedestrian and vehicular traffic at night
- Pleasant Street/Route 133 has truck traffic throughout the night
- Residents indicate that vehicular traffic peaks/fluctuates with mill shifts and is heavier on Fridays with the heaviest volume between 3:00–6:00 p.m. on Fridays

- Many of the heavy trucks traveling through the downtown are going to facilities outside of Livermore Falls, such as International Paper Co. in Jay
- Now that Route 133 has been reconstructed it is being used as a bypass of Route 4, especially when the state's weigh station is open in Wilton
- Drivers take the route of least resistance

The Maine Department of Transportation maintains traffic volume data for numerous roadways in Livermore Falls. MaineDOT has conducted Average Annual Daily Traffic counts for these roads. The following table presents this information for selected locations:

Livermore Falls Traffic Volumes 1993-2003

Location	1993	1996	1998	2001	2003	% Difference (1993-2003)
Route 4 (Bridge Street) southwest of Main Street (Main Street)	6,110	6,080	7,260	7,200	6,890	13%
Route 4/17 (Main St.) northwest of Route 4 (Bridge Street)	12,260	12,030	---	12,710	12,140	-1%
Route 4/17 (Main Street) southeast of Gagnon Street	10,300	10,870	---	10,990	9,820	-5%
Route 17 (Main Street) southeast of Route 4 (Bridge Street)	9,010	9,910	---	10,320	10,450	16%
Route 17/133 (Park Street) southeast of Depot Street	---	9,080	---	8,120	---	-11%
Route 17 (Depot Street) southwest of Route 133 (Pleasant Street)	---	8,380	9,330	8,520	8,040	-4%
Route 17/133 (Park Street) northwest of Sewall Street	---	8,700	9,850	7,540	7,820	-10%
High Street north or Depot Street	---	---	---	---	570	n/a
Route 133 (Pleasant Street) northwest of Route 17 (Depot Street)	---	2,120	2,610	1,940	2,360	11%
Route 133 (Church Street) north of High Street	---	2,980	---	2,980	---	0%
Route 133 at Wayne town line	---	1,730	1,940	---	1,760	2%

What's Been Done in the Past to Address Problems

Over the years, the town has been involved in numerous projects and studies related to downtown redevelopment and traffic issues. Previous efforts to improve conditions in downtown Livermore Falls are listed below.

- An old Community Development Block Grant (CDBG) paid for a downtown study
- A traffic plan done decades ago called for rerouting traffic from Route 4 through the Cumberland Farms lot and out to Ware Butler. Its origin is unknown but residents suspect it was a state Highway Commission plan.
- 10-15 years ago a truck bypass was proposed that would create a four-way intersection at Bridge Street and take traffic through the area now occupied by Cumberland Farms up to Church Street to connect with Route 133.

- In 2002, the town adopted its first comprehensive plan which identifies downtown traffic and safety issues, transportation goals, policies and implementation strategies.
- MaineDOT's Route 4 reconstruction project, from Bridge Street to Pineau Street in Jay, will include acquisition of the vacant gas station lot at the southerly corner of the Bridge/Main Street intersection. This will increase turning radius of intersection for traffic turning right off of Bridge Street. Construction project has been delayed from 2004 until at least 2008 or 2009.
- Town applied for Community Development Block Grant infrastructure funds in 2004 to replace utilities in conjunction with the Route 4 reconstruction project.
- Town has been awarded federal Enhancement funds to improve sidewalks in the village and to establish bicycle/pedestrian trail along Foundry Road. Local funds have been appropriated to match the Enhancement funding.
- In June 2004, Pierce Atwood Consulting completed an economic development and revitalization plan for the town that has recommendations relative to downtown traffic. Consultant was "fascinated" by the downtown traffic issues and made recommendations for access management on Main Street, north of the Bridge Street intersection. Consultant did not find access management issues on Depot Street or Main Street, south of the Bridge Street intersection.

Possible Solutions

Possible solutions for previously identified problems include both short-term and long-term actions and range in scope from moving the stop lines at the signalized intersection of Routes 4 and 17, to relocating the centerline of Route 17 at the Chuck Wagon corner, to constructing a new cross-country bypass from Hinkley Hill to Jay. While not all of the possible solutions presented are likely to be feasible, they are presented here for discussion and consideration.

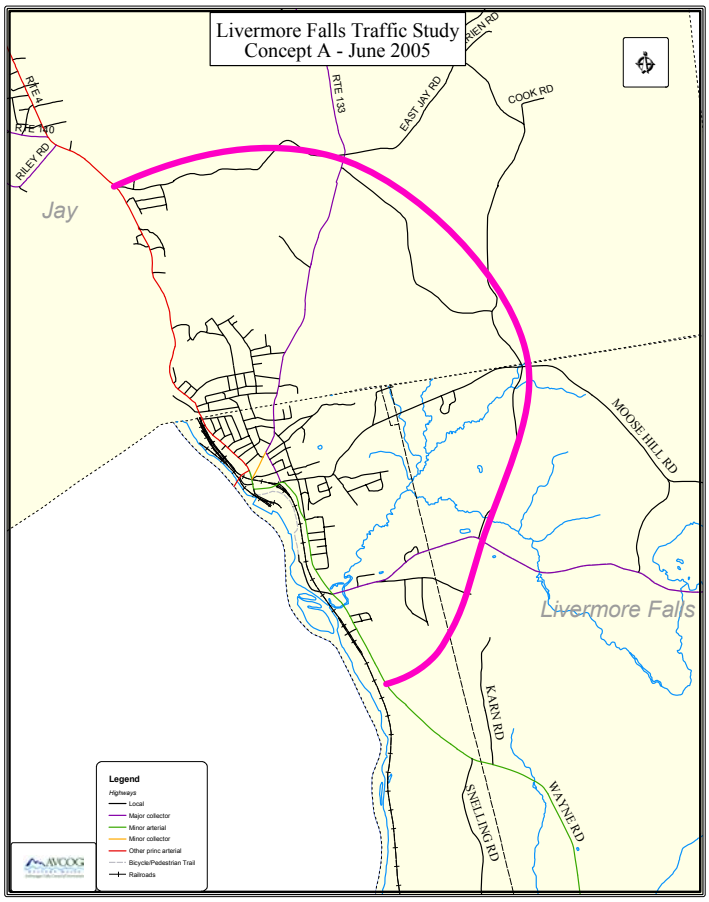
Short-Term

- Move stop lines at Main Street/Bridge Street signalized intersection if doing so will not interfere with signal loop detection system
- Contact MaineDOT about using the portable speed monitoring machine and place in strategic locations throughout the downtown to notify motorists of their driving speed and to collect data about speeds
- Consider adding street lights at Chuck Wagon corner to improve nighttime visibility for pedestrians and motorists
- Contact MaineDOT about adding gates at the three at-grade rail crossings
- Ask MaineDOT to evaluate whether flashing yellow lights are warranted for the Park Street school zone
- Drop speed limit through downtown to 15 miles per hour
- Add stop sign at Chuck Wagon corner to slow traffic and improve safety of intersection

Long-term

- Concept A

Construct a new, cross-country alignment that starts on Route 133 at Hinkley Hill, runs to the east of Isaacson Lumber property, crosses Route 17, runs along or in close proximity to Souther Road into Jay where it intersects Warren Hill Road, East Jay Road and Route 133, and becomes part of Hyde Road in Jay to the Route 4/Hyde Road intersection.



Pros:

- ❖ Removes truck traffic from downtown Livermore Falls
- ❖ Reduces traffic volumes at two at-grade rail crossings

Cons:

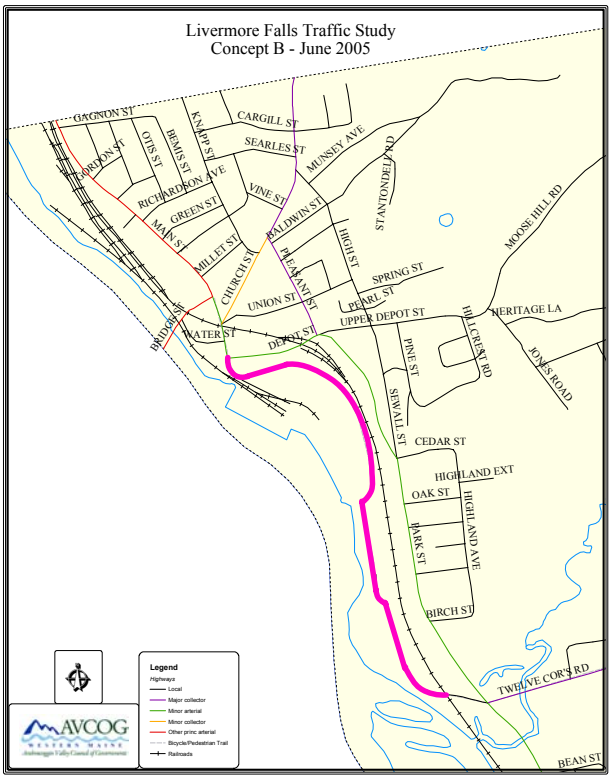
- ❖ Bypasses downtown Livermore Falls
- ❖ Environmental impacts
- ❖ Property acquisition and construction costs

Recommendation:

- ❖ This concept addresses some of the issues identified in this study but removes traffic from the downtown, which will not benefit the town and will affect future economic development initiatives. The environmental impacts may be significant due such factors as topography, prevalence of hydrologic features such as streams, brooks and wetlands, etc. This concept will be very costly and should not be considered.

- Concept B

Construct new road to arterial standards along Foundry Road, designate this as the new Route 17/133.



Pros:

- ❖ Provides more direct route of travel to/from Main Street
- ❖ Eliminates need for trucks to maneuver the tight turn at Chuck Wagon corner
- ❖ Reduces conflicts at Depot Street/Pleasant Street (Route 133) intersection
- ❖ May not require property acquisition

Cons:

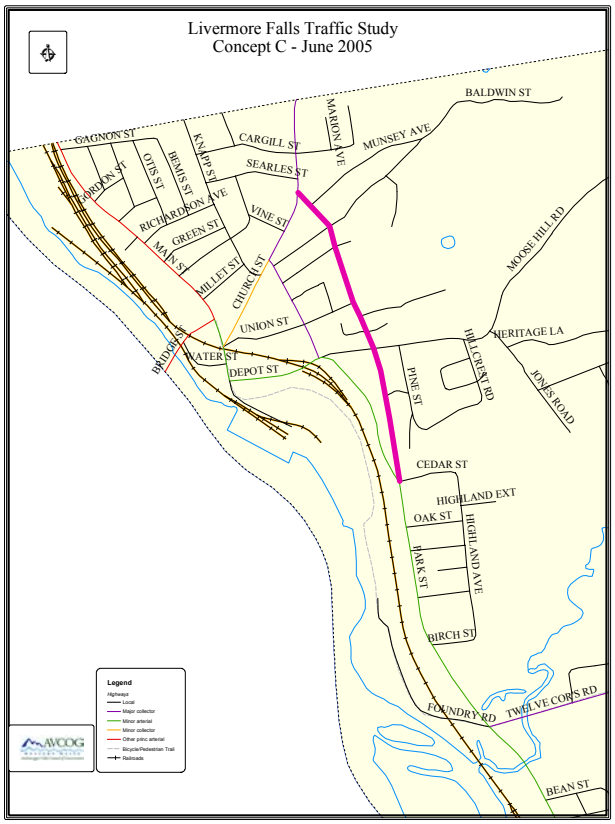
- ❖ Does not reduce the number of at-grade rail crossings for Route 17/133 traffic
- ❖ The slope at the intersection with Main/Depot Street in front of Town Office is too severe for large trucks
- ❖ The grade of Foundry Road at the Park Street intersection is steep and dangerous
- ❖ Foundry Road provides access to community recreational facilities (ball fields, skate park boat launch, etc) and a new bicycle/pedestrian trail is planned along Foundry Road
- ❖ Located within 100-year floodplain, previous history of inundation (1938, 1987)
- ❖ Construction costs

Recommendation:

- ❖ Foundry Road is an important asset to the town relative to recreational opportunities. Relocation of Route 17 to Foundry Road would create traffic conflicts with the municipal recreational facilities, would not reduce the number of at-grade rail crossings and would create new conflicts at the intersection of Depot Street and Main Street. This concept should not be considered.

- Concept C

Relocate Route 133 from Pleasant Street to Sewall Street and High Street.



Pros:

- ❖ Appears to be a more direct route between Park Street and Church Street

Cons:

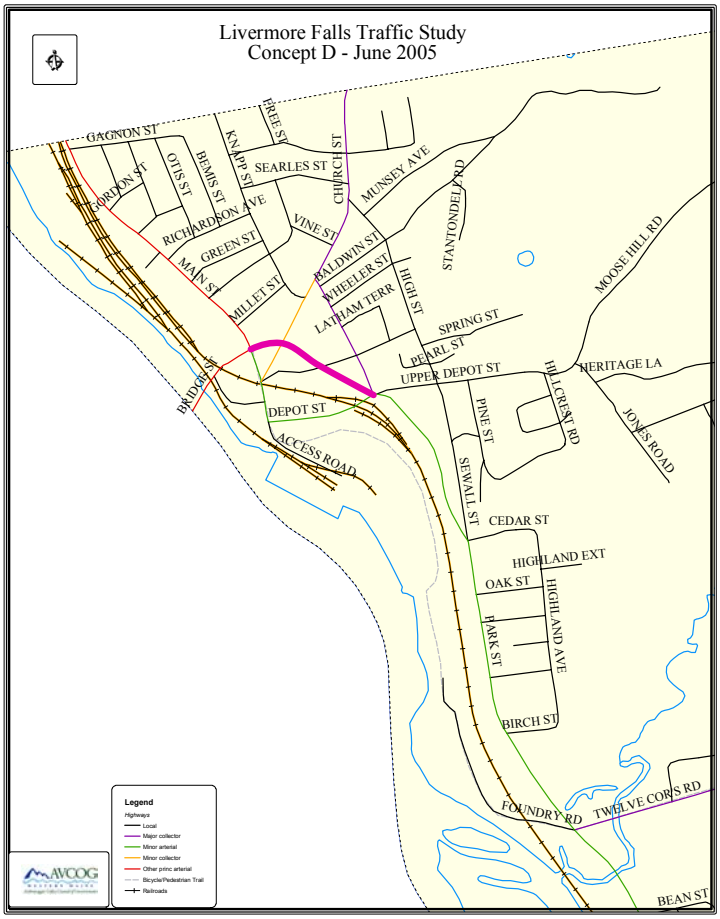
- ❖ Does not address issues related to Route 17 traffic
- ❖ The slope of Sewall Street may be too steep for trucks heading north on Route 133
- ❖ Sewall Street and High Street are narrow roads with houses very close to the road
- ❖ The High Street/Church Street intersection is narrow and confining, would have to acquire property in order to design intersection with acceptable turning radii for large trucks
- ❖ Neighborhood impacts
- ❖ Property acquisition and construction costs

Recommendation:

- ❖ The impacts of improving Sewall Street and High Street to accommodate Route 133 traffic are significant. This concept would have a devastating effect on the Sewall Street and High Street neighborhoods and should not be considered.

- Concept D

Construct a new road in the downtown opposite Bridge Street (Route 4), making this signalized intersection a four-way intersection. From the four-way intersection, the new alignment would cut up the hill and cross Church Street and Union Street, and intersect Depot Street at Pleasant Street. Designate this road, between Bridge Street/Main Street intersection and Church Street as Route 17, and the section between Church Street and Depot Street as Route 17/133. Designate the lower portion of Church Street as Route 133 and adjust federal functional classification accordingly.



Pros:

- ❖ Keeps thru-traffic in the downtown
- ❖ Reduces traffic volume at two at-grade rail crossings
- ❖ Eliminates the need for trucks to maneuver the Chuck Wagon corner
- ❖ Can re-open on-street parking spaces
- ❖ Makes downtown more appealing and safer for bicyclists and pedestrians
- ❖ Provides opportunity for the town to develop a "pedestrian-friendly shopping area", as contemplated in the town's 2002 Comprehensive Plan (Section I-2)

Cons:

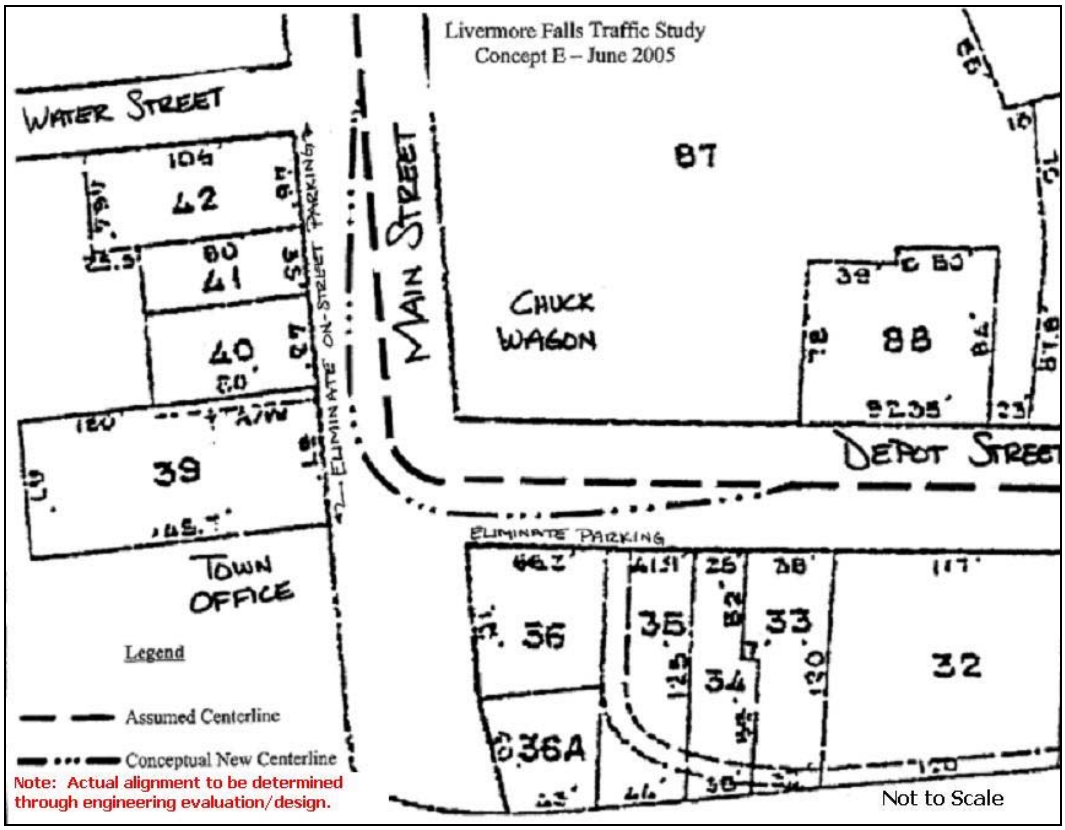
- ❖ Would require relocation of families and business(es) to accommodate new alignment.
- ❖ Slope at intersection with new road and Church Street is steep (although it is no steeper than at the Main Street/Church Street intersection)
- ❖ Property acquisition and construction costs

Recommendations:

- ❖ Although this concept would result in displacement of businesses and residents, it should be pursued for further consideration. This concept addresses many of the problems cited and creates a safer alignment while keeping the traffic in the downtown.

- Concept E

Realign and relocate Depot Street center line four to six feet to the west at Chuck Wagon corner, reduce width of the sidewalk in front of town office to match width of the sidewalk in front of Weber Insurance to accommodate increase turning radii of relocated centerline, eliminate on-street parking between Water Street and Town Office (in front of Weber Insurance), eliminate on-street parking in front of Nason building, eliminate northerly crosswalk in front of Chuck Wagon.



Pros:

- ❖ Short-term implementation opportunity
- ❖ Improves turning radii for trailer trucks
- ❖ Improves safety for pedestrians in crosswalk
- ❖ Off-street parking lots appear to have sufficient capacity to meet downtown parking demands after loss of on-street parking spaces

Cons:

- Does not reduce traffic volume at the at-grade rail crossings
- Reduces the number of on-street parking spaces
- Reduces aesthetic design of town office facade

Recommendations:

- This concept is an affordable, easily achievable, short-term solution to some of the downtown traffic issues. Town should foster local support for this concept and work with MaineDOT to redesign this intersection.
- The town should acquire a long-term lease to the parking lot adjacent to Chuck Wagon Restaurant and behind the Chinese restaurant for use as a public parking area and official Park & Ride commuter lot. This will offset the loss on on-street parking spaces at this corner and lessen the need for patrons to businesses adjacent to Chuck Wagon from having to cross the street.

Conclusions and Recommendations

Existing land use conditions were evaluated relative to the problems identified. The problems are not related to land use issues or access management; they are more closely related to geometrics, traffic type and volume. Since adoption of the comprehensive plan in 2002, the town has begun revising and strengthening its land use regulations. While additional changes to the town's land use ordinances may be warranted, they will not result in improved traffic conditions in the downtown.

The town's comprehensive plan establishes a policy "to assure that future rerouting of traffic does not negatively affect local business" (Section I-4). Business owners, municipal officials and residents reiterated this at the May 4, 2005 public hearing. The clarity in the town's Comprehensive Plan and recent public confirmation of this policy makes it easy to discount a number of the concepts presented in the previous section.

The Church Street/Union Street/Main Street intersection was reviewed but not evaluated because there do not appear to be any viable design solutions. There are no recommendations for improvement to this intersection.

The Park Street/Pleasant Street intersection was reviewed but not evaluated because there do not appear to be any viable redesign solutions without substantial right-of-way acquisition. If Concept D is studied further in the future, alignment issues at this intersection should be considered as well. There are no recommendations for improvement to this intersection at this time.

Two of the short-term possible solutions identified above are not likely to be approved by MaineDOT. They include adding stop signs at the Chuck Wagon corner and reducing the speed limit through the downtown. Installation of stop signs will not solve the problem of trucks crossing the centerline. The stop signs would cause the trucks to maneuver through the intersection differently than they do currently, however, there would still be sight distance problems and the trucks would still cross the centerline at some point through the turn because

there is not sufficient width in the travel lanes, given the sharp degree of the turn, to accommodate the entire length of a truck's cab and trailer. Reducing the downtown speed limit to 15 miles per hour most likely would not be approved by MaineDOT because Route 17 is an arterial highway.

Actions the town should take, in order of priority, include:

Short-Term

1) Foster local support for Concept E and ask MaineDOT Regional office to redesign the Chuck Wagon corner accordingly.
2) Eliminate the Main Street crosswalk in front of Chuck Wagon restaurant.
4) Ask MaineDOT to evaluate whether flashing yellow lights are warranted for the Park Street school zone.
5) Contact MaineDOT about using the portable speed monitoring machine and place in strategic locations throughout the downtown to notify motorists of their driving speed and to collect data about speeds.
6) Consider adding street lights at Chuck Wagon corner to improve nighttime visibility for pedestrians and motorists.
7) Evaluate the need for additional speed enforcement downtown and in the Park Street school zone.

Long-Term

1) Acquire long-term lease to the parking lot adjacent to Chuck Wagon Restaurant and behind the Chinese restaurant for use as a public parking area and official Park & Ride commuter lot.
2) Determine whether any of the long-term concepts (Concepts A-D) presented above are appropriate and acceptable. If so, the town should foster local support for advancing the concept to MaineDOT for further study. The town should solicit input from the Downtown Betterment Group, downtown businesses, downtown property owners, downtown homeowners and the general public prior to selecting a concept for consideration. The town must advocate for further evaluation of the concept by petitioning MaineDOT to include funding in its biennial work plan for the next phase of study.

Actions the state should take, in order of priority, include:

1) Move stop lines at Main Street/Bridge Street signalized intersection to better accommodate trucks making right turns, provided doing so will not interfere with signal loop detection system.
2) Add gates at all three at-grade rail crossings.
3) Improve condition of downtown rail crossings to reduce the roughness and jarring effect experienced by motorists.
4) Work with the town, in a timely manner, to further evaluate opportunities to improve traffic conditions in the downtown, as requested by the town per the above recommendations.