

October 27, 2008

Secretary Ian A. Bowles  
Executive Office of Energy and Environmental Affairs  
Attention: MEPA Office  
Nicholas Zavolas, EEA No. 01982  
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RE: Payne's Crossing Proposed Retail Center  
Traffic Peer Review of SSFEIR for EEA #01982  
McMahon Project No. Y07537.13

Dear Secretary Bowles:

McMahon Associates has completed a review of the transportation section of the Second Supplemental Final Environmental Impact Report (SSFEIR) filed on September 2, 2008 and re-filed on September 30, 2008 in accordance with the Massachusetts Environmental Policy Act (MEPA) for the Payne's Crossing Project in Freetown, MA. The SSFEIR for the Payne's Crossing Project is in response to the certificate issued by the Secretary of the Executive Office of Energy and Environmental Affairs (EEA) issued on January 9, 2008 on the 3<sup>rd</sup> Notice of Project Change (3<sup>rd</sup> NPC) for EEA # 01982.

The purpose of this letter is to present our comments on the SSFEIR for the proposed development. Significant issues still remain with regard to the traffic impacts of this project, based on missing or incomplete information included in the SSFEIR. We were unable to review two of the three mitigation alternatives presented in the SSFEIR because **analysis of any alternatives involving proposed roundabouts was not included in the SSFEIR**. The lack of this information impairs our ability to fully comment on the impacts of the proposed mitigation. Additionally, our prior comments and recommendations on modifying the Build condition analysis were not incorporated in the SSFEIR, but were instead provided in a **separate "sensitivity analysis" which essentially disregards our recommendations**. Further, **the sensitivity analysis presented in the SSFEIR incorrectly applies some of our assumptions**, placing the validity of the sensitivity analysis and its comparison to the Build condition analysis by the Proponent in question. Finally, in reviewing the signalized alternative for mitigation for which analysis was provided, we found that **queues may still impact access to the Route 24 ramps**. The extent of the impact of this queuing remains unclear, based on our concerns with the Build condition analysis and our inability to review the roundabout analysis for two of the three mitigation alternatives. We urgently and respectfully request that either **no decision or an inadequate finding on the SSFEIR be rendered by MEPA until the Proponent provides additional information** requested in this letter for review and comment.

### **Project Description**

The Payne's Crossing SSFEIR is the most recent of a series of environmental filings for the Freetown Fly Ash Site landfill. The proposal involves construction of a retail development on an almost 81 acre site located on South Main Street, and bordered by the Assonet River, Assonet Bay and the Massachusetts Route 24 limited access highway in Freetown. The current Project involves the construction of an overall 377,000 sq. ft. retail center that includes a 167,000 sq. ft. home improvement center, a 195,000 sq. ft. discount superstore, and 15,000 sq. ft. of retail space. (The 3<sup>rd</sup> NPC filing in December 2007 discontinued a previously proposed second phase of the project which had included three non-specified retail components of the following sizes: 30,000 sq. ft., 22,400 sq. ft., and 16,400 sq. ft.; 5,220 sq. ft. of restaurant space; and 6,670 sq. ft. of office space, totaling 80,690 sq. ft.)

### **MassHighway Coordination**

The traffic mitigation section of the SSFEIR provides three alternative strategies for mitigation in the vicinity of the Route 24 interchange ramps and the proposed site driveway. These alternatives include installing signals, roundabouts, or a "hybrid" alternative using a signal and a roundabout. The SSFEIR also states that the Massachusetts Highway Department (MassHighway) has reviewed and deemed these alternatives acceptable, as a result of a series of meetings held after the Secretary's decision on the 3<sup>rd</sup> NPC between the Proponent and MassHighway Boston and District 5 staff. No documentation of these meetings or formal MassHighway acceptance of the proposed mitigation was included in the SSFEIR. We anticipate that MassHighway will review and comment on the analysis presented in the SSFEIR and provide those comments to the MEPA Office.

Further discussion of the proposed traffic mitigation, including our comments, can be found later in this letter.

### **Transportation Section Comments**

McMahon Associates has submitted comments on the Transportation Section for each of the submissions by the Proponent through the MEPA review process. Upon reviewing the SSFEIR, it appears that several comments we have previously provided on this project have been incorporated in a "sensitivity analysis", provided as a sub-section to the Transportation portion of the SSFEIR. McMahon Associates believes that our prior recommendations should have been incorporated in the Proponent's Build and Build with Mitigation analysis scenarios and not set aside in a separate analysis that has simply been disregarded by the Proponent. Additionally, some of our recommendations were not applied appropriately in the sensitivity analysis, leading us to question the validity of the Proponent's sensitivity analysis, particularly with regard to vehicle queuing along South Main Street.

The SSFEIR has also been revised to provide information requested in prior comment letters, such as a mainline ramp analysis of the Route 24 Exit 9 interchange. Below we have provided a

detailed review of each of the aspects of the transportation section, including the sensitivity analysis, of the SSFEIR.

### **Study Area**

The comments below about the study area were also made in review of the SEIR, the SFEIR, and the 3<sup>rd</sup> NPC. **No study area changes were made in the SSFEIR to address these comments.**

The Study Area prepared for the traffic impact analysis is the minimum area required by the MEPA certificate, and covers the Main Street Corridor (north and south) from the Route 24 ramps at Exit 10 southward to the Stop & Shop Driveway. The analyzed area includes all significant intersections on Main Street within the study area limits, as well as the Elm Street/Mill Street intersection just east of downtown Freetown. Though the Study area is responsive to the MEPA requirements, MEPA comments on the previous NPC filed in September 2006 requested that additional areas be evaluated. The potential impacts of the Project on the following additional areas (not included in the SSFEIR) should be evaluated:

#### Route 24 Exit 8 Ramps/Airport Road/North Main Street

According to the Trip Distribution provided in the SSFEIR, 15% of all project-related trips are stated to come from south of the Stop & Shop Driveway. With only minor localized intersections between the Stop & Shop Drive & the Airport Road/Exit 8 intersection, it can be assumed that most of this 15% will traverse this intersection. This represents 134 vehicles in the PM peak and 215 vehicles during the Saturday peak hour, based on the trip generation figures presented in the SSFEIR. To the North, the study area along Main Street extended to the Exit 10 ramps from Route 24, despite the attribution of only 5% of Project trips to this location.

### **Background Growth**

The following comments about background growth were also made in review of the SEIR, the SFEIR, and the 3<sup>rd</sup> NPC; **these comments have NOT been addressed.**

The SSFEIR evaluated a future scenario accounting for traffic generated by other proposed developments in the area, as well as a background growth rate. This information and analysis was prepared for a 5-year horizon (2011) and forms a picture of the transportation system on which to evaluate the proposed Project. In the SSFEIR, the Proponent evaluated two scenarios of future growth, a standard 2011 No-Build with expected growth at that time, and a post-build scenario that included the full build out proposed by several larger projects in the area, (Riverfront Business Park, Fall River Executive Park, Route 24 Access Improvements, and New Bedford/Fall River commuter rail), along with full build out of the Payne's Crossing project.

For the 2011 No-Build, the SSFEIR adds the traffic from the Boston Beer brewery proposed to be built in the Campanelli Business Park, accessed via Ridge Hill Road, off South Main Street, in the Project Area. It is our understanding that Boston Beer has abandoned their plans for this project. The SSFEIR indicates that the forecasted traffic from this project was included in the

No-Build network to present a conservative scenario, which is appropriate to consider other development potential for the Boston Beer property. However, the Proponent should provide an update on the status of the Boston Beer property. **Our previous comments on the SFEIR and 3<sup>rd</sup> NPC requested this information.**

Additionally, a 2.0% background growth rate (compounded annually) was used and incorporated into the analysis. The 2.0% growth rate was based upon a review of counts taken at a nearby MHD count station on Route 140 between 1998 and 2004, which showed a 2.8% annual growth. The SSFEIR then states, "Assuming background development in the vicinity of the project will be limited for the next five years, an annual growth rate of two percent was applied.<sup>1</sup>" The SSFEIR should provide further basis for use of the 2.0% annual growth number considering the observed 2.8% annual growth, which, when compounded annually, would result in an overall 14.8% background growth. **The SSFEIR did not adequately respond to this comment, which was also made in review of the SEIR, SFEIR, and the 3<sup>rd</sup> NPC.** The Proponent should either confirm the growth rate with the Southeastern Regional Planning & Economic Development District (SRPEDD), check its consistency with the rate used by the Boston Beer project, or compare the new counts taken on adjacent roads with those taken as part of the permitting for the Stop & Shop Distribution facility or other projects for a more localized comparison.

### **Sensitivity Analysis Overview**

The SSFEIR has included a separate "sensitivity analysis" for the Build with Mitigation scenario, which incorporates our prior recommendations for trip generation, trip distribution, and capacity analysis parameters. This sensitivity analysis stands as the Proponent's response to our previous comments and recommendations. The Proponent concludes that application of our recommendations does not result in a significantly different analysis from what is presented as the Build with Mitigation analysis in the SSFEIR. For this reason, none of our recommendations were actually incorporated in the Proponent's Build or Build with Mitigation analysis scenarios detailed in the SSFEIR.

McMahon Associates believes that our prior recommendations should have been incorporated in the Proponent's Build and Build with Mitigation analysis scenarios and not set aside in a separate analysis that has simply been disregarded by the Proponent. Additionally, as our comments later in this letter will reflect, some of our recommendations were not applied appropriately in the sensitivity analysis. For this reason, we question the validity of the Proponent's sensitivity analysis and its subsequent comparison with the Proponent's Build with Mitigation analysis.

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<sup>1</sup> Section 6.3.1, Payne's Crossing SSFEIR

### **Trip Generation Methodology**

The building program calls for the development of the 167,000 sq. ft. Home Improvement Store, the 195,000 sq. ft. Free Standing Discount Superstore, and 15,000 sq. ft. of retail space. The vehicle trips associated with the Free Standing Discount Store and retail space were developed by using the associated land use codes from the Institute of Transportation Engineers (ITE) publication *Trip Generation, 7th Edition, 2003*. The ITE publication has specific codes for a Free Standing Discount Superstore (LU Code 813) and a Home Improvement Superstore (LU Code 862), which were used appropriately in the analysis. It should be noted that previous submittals used tenant-specific rates based on empirical data collected at sixteen Lowe's Home Improvement Warehouse Facilities. A weighted empirical average trip generation rate was developed from this data; resulting in tenant-specific peak hour trip rates approximately 25 to 33 percent lower than the ITE trip rates for a Home Improvement Superstore. The ITE trip rates used in the SSFEIR result in a more conservative trip generation estimate, and are consistent with trip generation estimates contained in a memo from Tetra Tech Rizzo (included as part of the 3<sup>rd</sup> NPC), dated October 11, 2007, detailing supplemental analysis requested by MassHighway for the 2011 Build condition.

Specific uses for the 15,000 sq. ft. of retail space were not defined within the SSFEIR, so the more general code for Shopping Center (LU Code 820) was used to project volumes for that portion of the Project development. The size of the Discount Superstore and the Home Improvement Store together is 362,000 sq. ft. Trip generation for the retail portion was estimated by subtracting the generated trips for a Shopping Center of 362,000 sq. ft. from the generated trips for a Shopping Center of 377,000 sq. ft. Alternate methods exist for generating trips for the 15,000 sq. ft. of retail space. However, differences between these alternate methods would not affect the overall results of the analysis presented in the SSFEIR.

Based on the building program as currently proposed, the trip generation approach used in the SSFEIR is one of a few ways to estimate trip generation for the Payne's Crossing project. Use of the ITE land use code for Shopping Center applied to 377,000 sq. ft. of retail space could also be considered, particularly if alternate, non-specific retail uses are considered in future development of this project. Such an application of the Shopping Center land use code would result in a greater number of project-generated trips, during both peak hours (ranging from a 22% to 43% increase) and for daily trips (a 25% increase). However, given that the currently proposed building program is clearly defined, the trip generation methodology presented in the SSFEIR, while slightly different than what was presented in previous submittals to MEPA, is acceptable for the proposed project and generally conforms to standard engineering practice.

### **Internal Capture Rate**

The ITE Trip Generation determined Daily and Peak Hour projections for a typical Weekday and Saturday. Unadjusted trip volumes were 15,872 for a weekday, with 1,216 occurring during the PM peak hour. On Saturday these numbers were 20,342 daily and 1,970 during the peak hour (11AM-12PM). An internal capture rate of 14% peak and 19% daily trips was then

applied to the Proponent's Build condition volumes, which corresponds to 163 trips during the weekday peak hour and 288 trips during the Saturday peak hour. The internal trip rate is intended to account for those trips destined for more than one use within a Site. The SSFEIR details the methodology and ITE calculations used to determine the internal capture rate. While the methodology applied is in keeping with ITE standards, capture rates are often best applied for truly mixed use developments such as joint office, residential and retail developments. The ITE manual further warns that data is limited for use of internal capture rates and they should be applied with caution. While undoubtedly some patrons of the Project will visit both the home improvement and discount stores, lower internal capture rates would have been more appropriate given the nature of this development.

In our previous comments, we recommended internal capture rates of 5% peak and 10% daily trips be used to reflect more realistic conditions. These percentages were used in the sensitivity analysis.

#### Pass By Rates

After applying the internal capture rate, the SSFEIR utilized a pass-by rate, which is intended to account for trips that are drawn from the existing traffic stream. Though these are "new" trips to the Site, they are not "new" to the surrounding roadways. The SSFEIR states that although MEPA allows up to a 25% pass-by rate, a more conservative 15% pass-by rate was used in the Proponent's Build condition analysis to account for the lower volumes on South Main Street.

Even with the 15% rate used, the 1,948 weekday daily trips counted as pass by **represent 16.9% of the total existing volume on South Main Street**. For Saturday, the 2,468 daily trips counted as pass by **represent 26.0% of the total existing volume on South Main Street**. These volumes represent a significant percentage of the existing traffic to be assumed to divert from the adjacent roadway. While the statement that MEPA allows a 25% pass by rate is accurate, it can be misleading because MEPA actually caps the pass by rate credit at 25% regardless of supporting evidence. In the SSFEIR, no supporting evidence for the pass-by rate used is provided. It is more likely that the majority of trips that may be viewed as pass-by are actually diverted link trips from Route 24. In fact, the SSFEIR treats all trips coming from Route 24 as new trips to the roadway system. In our previous comments, we recommended that either a lower pass-by rate be utilized or a more thorough analysis of a combination of pass by and diverted link trips between Route 24 and South Main Street be conducted.

Our previous comments recommended that the full 25% pass-by credit allowed by MEPA be used, applied proportionately to South Main Street (5% pass-by rate) and Route 24 (20% of project trips diverted to the Exit 9 ramps), based on daily volumes. Both of these recommendations were incorporated in the sensitivity analysis.

In summary, a comparison of trip generation between information contained in the Proponent's Build condition analysis and the sensitivity analysis shows an additional 2,910 vehicles will

enter the study area on a typical weekday; this number increases to 3,718 vehicles on a typical Saturday. This increased number of vehicles using local roadways will impact the operation of the study area intersections – most notably, the Route 24 ramp intersections and the Site Drive intersection on South Main Street.

### **Trip Distribution**

The following comments regarding trip distribution were also made during the review of the SEIR, the SFEIR, and the 3<sup>rd</sup> NPC. **NO changes to the trip distribution for the Proponent's Build condition analysis were made to address these issues.**

Project trip distribution was prepared to allocate the “new” trips to the Site along the surrounding roadways. The distribution was prepared appropriately based on a review of census data, existing traffic patterns, and competing shopping centers. Given the location of the Site, the majority (55%) of trips are expected to come from Route 24. The remaining trips are shown to use the North/South Main Street corridor to reach the Site. While the overall methodology is sound, some adjustments should have been made to account for the following inconsistencies:

- 5% of trips are shown to use Copicut Road, which is lightly traveled. Projected trips are 3 to 4 times existing volumes.
- No Site trips are projected to use Narrows Road, despite the fact that 40% of PM peak (54% on Saturdays) southbound South Main Street traffic turns right onto Narrows Road. The assumption that no trips originate from or are destined to Narrows Road is not reasonable.
- No Site trips are proposed for Ridge Hill Road.
- Project generated trips are shown using the Route 24 Ramps at Exit 10 headed South, as well as trips on North Main Street. The combination of these two values does not add to the 5% shown on the trip distribution.

Based on these comments, we have recommended the following distribution of trips listed in Table 1 below (which were used in the sensitivity analysis included in the SSFEIR); we have further refined our recommendations to account for project traffic using Narrows Road:

Table 1: Revised Project Trip Distribution Pattern

<u>Route/Direction</u>	<u>Proponent</u>	<u>Proportion of Site Trips</u>	
		<u>Sensitivity Analysis</u>	<u>McMahon</u>
To/from the south via Route 24	40%	54%	54%
To/from the north via Route 24	15%	20%	20%
To/from the south via South Main Street	15%	5%	4%
To/from the south via Narrows Road	0%	0%	1%
To/from the east via Copicut Road	5%	1%	1%
To/from the west via North Main Street	5%	5%	5%
To/from the east via Mill Street	10%	10%	10%
To/from the east via Elm Street	10%	5%	5%
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

### **Capacity Analysis Comments**

A traffic operations capacity analysis was included in the SSFEIR. This analysis covers the following scenarios:

- Existing Conditions (2006),
- No Build (2011),
- Build (2011),
- Build with Mitigation (2011),
- Sensitivity Analysis (based on our previous comments as described earlier), and
- Post Build.

All analyses were completed based on the *2000 Highway Capacity Manual* with summary tables provided in the report and worksheets provided in the appendices. The Existing, No Build, and Build scenarios reviewed every intersection in the Study Area for the weekday evening & Saturday mid-day peaks, except the Post Build scenario, which reviewed the PM Peak only. Synchro 6.0 software was used to analyze peak hour operations at the studied intersections.

Three mitigation alternatives were presented in the SSFEIR:

- Alternative 1 – Signalized Alternative: This alternative would involve installing traffic signals and making capacity improvements along South Main Street at its intersections with the proposed Site Driveway and the Route 24 ramps.
- Alternative 2 – Roundabout Alternative: This alternative would involve installing roundabouts at the South Main Street intersections with the proposed Site Driveway and the Route 24 Northbound ramps. Additionally, the Route 24 Southbound Ramps intersection would be modified to eliminate all left turns and a new Route 24 Southbound on-ramp would be constructed at the roundabout intersection at the Site Driveway.
- Alternative 3 – Hybrid Alternative: This alternative is comprised of the traffic signal and roadway capacity improvements at the Route 24 Northbound ramps intersection from Alternative 1, combined with the roundabout concept and associated roadway

redevelopment (including the proposed new Route 24 Southbound on-ramp) from Alternative 2.

We were unable to review Alternatives 2 and 3 because the roundabout analysis worksheets (using the VISSIM software package) were not included in the SSFEIR. **We urgently and respectfully request that either no decision or an inadequate finding on the SSFEIR be rendered by MEPA until the Proponent provides this analysis for review and comment.** Delay and queue summaries for the roundabout alternatives are provided in the SSFEIR (in Tables 6-11 and 6-12); however, without the supporting analysis, we are unable to properly comment on the merit of these alternatives.

For the balance of this comment letter, due to lack of information, our review and comments corresponding to capacity analysis will reflect Alternative 1 (Signal Alternative) as the mitigation for this project.

#### Methodology

Subject to the comments of incomplete or missing information given below, the methodology used to determine the Level of Service (LOS), delays, volume to capacity (V/C) ratios, and other measurable traffic conditions in the SSFEIR is generally acceptable. A thorough review of all of the inputs and outputs utilized in the analysis for each scenario is difficult because some of the information is not included in the report or its appendices. Any of the questions raised here may or may not have an impact on the overall level of service or capacity at the study intersections. Regardless, the specific methods and inputs used should be demonstrated or explained in response to the comments listed below:

- Existing conditions show significant truck volumes (ranging from 4.6 to 9.3% of total intersection volume in the PM Peak between southbound Exit 9 ramps and the Stop & Shop driveway), but the unsignalized intersection analysis worksheets do not show the heavy vehicle percentage used. There is no way to verify that the appropriate heavy vehicle percentage was used in the analysis.
- Peak hour factors (PHF) appear to have been calculated for each intersection for the Existing and No Build conditions. However, for the Build conditions, a default rate of 0.95 was used across the board for all movements of all intersections. Where levels of traffic being generated are significant, it is acceptable to use the default PHF specified in the Highway Capacity Manual, which is 0.92. However, under no circumstances should the PHF be changed for an approach to which no traffic is being added. In fact, it is common practice to **keep the PHF constant at existing intersection approaches through all analysis conditions**, regardless of projected traffic fluctuations.

For example, the Stop & Shop Driveway has a PHF of 0.60 in the Existing Condition. No traffic is proposed to be distributed to that driveway for this Project, yet the PHF for the build conditions was changed to 0.95. As a result of changing the PHF in the Synchro analysis, **the reported delays, V/C ratios, and queues are shown to be lower than they**

**realistically will be.** It should be noted that in the “sensitivity analysis” developed to address our prior comments, a 0.92 PHF was used across the board, in a similar fashion to the 0.95 PHF used in the Build conditions. **This methodology is incorrect, and the Build analysis should be changed so that the PHF for existing intersection approaches remains unchanged.** This important point impacts the queuing analysis, as will be shown later in this letter.

### Results

It is important to note that the deficiencies in the Study Area, Trip Generation, and Trip Distribution analyses listed above carry through to the Build scenario, therefore leaving all capacity analysis results with unanswered questions. As the percent heavy vehicles inputs in the Synchro results cannot be thoroughly reviewed and with inappropriate assumptions about peak hour factors, it is difficult to assess the results provided with confidence. However, based upon the information provided, a general review of the potential impacts of the Project can be completed. Based on the SSFEIR, it appears that only certain intersections experience significant degradation of LOS or increases in delay. This is most likely owing to the capacity of the roadway system, and relatively light level of existing traffic.

The primary impacts shown are at the Site Driveway; the Exit 9 off-ramps at South Main Street; the Elm Street westbound approach at its intersection with North Main Street, South Main Street, and Water Streets; and the Elm Street westbound approach at its intersection with Mill Street. The SSFEIR proposes significant mitigation for each of these intersections, with a total program of approximately \$4 million, including roadway widening, signal systems and/or roundabouts, and other roadway improvements. As the analysis shows that other locations are minimally impacted, no specific mitigation is proposed. Ridge Hill Road shows significant approach delays in the 2011 scenarios, but these delays are shown largely as No-Build issues.

The Elm Street westbound approach at its intersection with Mill Street shows degrading LOS from the No Build scenario to the Build scenario. For the Saturday peak hour, the No Build LOS is shown as C which degrades to LOS E in the Build scenario. The proposed mitigation for this intersection does not involve any capacity improvements, so even with mitigation, the exit from Elm Street operates at a degraded LOS.

In the sensitivity analysis provided in the SSFEIR, the Elm Street approach at the intersection of South Main Street, North Main Street, Elm Street, and Water Street degrades from LOS D in the No Build to LOS E in the Build scenario during the Saturday peak hour. The proposed mitigation for this intersection does not involve any capacity improvements, so even with mitigation, the Elm Street movement operates at a degraded LOS.

### Queuing

In reviewing the SSFEIR, several of the queuing results from the capacity analysis stand out. There are time periods and locations at which **through movement queuing extends beyond the**

**length of the turn lanes causing congestion.** When a through movement queue exceeds the storage length of a turning lane, the queued traffic blocks turning vehicles from moving into the turning lanes. As a result, delays for turning vehicles will be longer than reported, and queues for the through movements will be longer because turning vehicles will be queuing in the through lane while being blocked from the turning lane. It should be noted that **Synchro methodology does not account for turning vehicles that are blocked from entering turning lanes by queued vehicles, thus reporting lower delays than would actually occur.** While some of the proposed turn lanes can be extended to accommodate congested conditions, the turn lanes between the proposed site driveway and the Route 24 northbound ramps are unable to be lengthened without either modifying the location of the intersecting roadways or widening the bridge abutments carrying Route 24 over South Main Street. The shifting of the site driveway location further east than was shown in previous MEPA submittals further reduces the available queue storage between the site driveway and the Route 24 Southbound ramps.

As stated earlier, we have significant questions about how the Build conditions network and analysis was developed. While the sensitivity analysis comes closer to our view of how the Build analysis should have been performed, we have reservations about how our recommendations were applied – particularly, the use of Peak Hour Factors. McMahon Associates had conducted an independent analysis of the study area in preparing our comments on the 3<sup>rd</sup> NPC; our recommendations were used in this analysis and indicate additional queuing issues not previously reported by the Proponent. With the updated trip generation provided in the SSFEIR, we have revisited this analysis to help develop comments on the SSFEIR.

Under the Build with Mitigation scenario (using Alternative 1), signals are proposed for three intersections: Site Driveway at South Main Street, Route 24 SB Ramps at South Main Street, and Route 24 NB Ramps at South Main Street. As a result of installing signals, mainline traffic on South Main Street, which was formerly free-flowing, would be stopped during part of each cycle, causing vehicles to queue on South Main Street. Based on the sensitivity analysis performed in the SSFEIR, the following queuing problems will exist after the Project is built with Alternative 1:

Route 24 SB Ramps at South Main Street

- South Main Street EB thru – 95% queue exceeds storage length of EB left turn and through lanes (Saturday midday peak hour)

Based on our analysis, the following additional locations may also experience queuing problems after the Project is built with Alternative 1:

Site Driveway at South Main Street

- South Main Street EB through – 95% queues exceed storage length of EB left turn lanes (weekday PM peak hour)
- South Main Street WB right – average and 95% queues exceed storage length of SB through and right turn lanes (Saturday midday peak hour)
- Site Driveway SB left –95% queues exceed storage length of SB left turn lanes (Saturday midday peak hour)

Route 24 SB Ramps at South Main Street

- South Main Street EB left – 95% queues exceed storage length of EB left turn and through lanes (Saturday midday peak hour)
- South Main Street WB through – average and 95% queues exceed storage length of WB through and right turn lanes (Saturday midday peak hour)

In addition, these reported queues may at times be exceeded, since Synchro only reports queue results at congested locations after two traffic signal cycles. Our analysis of the South Main Street WB through movement suggests that **queues may routinely back up to and beyond the bridge carrying Route 24 over South Main Street**. As stated earlier, turn lanes at this approach cannot be extended unless **the bridge carrying Route 24 over South Main Street is widened**.

**Route 24 Mainline Analysis**

Route 24 is a limited access highway, owned and operated by MassHighway running from the Rhode Island border to the south to I-93 in Randolph to the north. Our December 27, 2007 comment letter on the 3<sup>rd</sup> NPC, as well as prior comments from the Massachusetts Executive Office of Transportation (EOT) requests a review of the Project's impacts to the Route 24 mainline.

A Route 24 mainline ramp analysis was provided in the SSFEIR that analyzed merging and diverging operations at the Exit 9 on- and off-ramps, based on methods outlined in the Highway Capacity Manual. The analysis stated that in the Build condition, all ramp junctions operate at LOS C or better, with the exception of the Route 24 Southbound on-ramp, which experience LOS D in the weekday evening peak hour. The analysis indicates that volumes for the Route 24 mainline were obtained from the Environmental Impact Report for the Fall River Executive Park project, and that no diverted trips were taken into account for the analysis, in order to remain conservative. However, it is unclear what growth rates were used for the Route 24 volumes. No accident data was provided for the Route 24 mainline at the Exit 9 ramp junctions. Also, while the report states that ramp volumes in the analysis were taken from the data collection for the SSFEIR, the ramp volumes in the analysis worksheets do not match the peak hour volume figures. Additionally, the report noted that acceleration lengths for the two Route 24 on-ramps at Exit 9 were approximately 200 feet shorter than current MassHighway standards. Project trips account for at least 30% and up to 53% of the on-ramp volumes in the Build condition, which introduces a potential safety issue at the ramps' junctions with the Route

24 mainline. No potential mitigation for the Route 24 on-ramps was discussed in the SSFEIR to alleviate this condition. **All of these issues need to be addressed by the Proponent.**

### **Safety Concerns and Overall Impacts**

It is clear that the Project will represent a significant change in the character and use of the North and South Main Street corridor. Regardless of the results of the individual intersection impact analysis, the Project as reported will generate over 11,000 new (adjusted) trips per weekday, with nearly 900 new trips during the PM peak hour. The traffic count shown in the SSFEIR from Thursday, September 28, 2006 showed 11,497 trips on South Main Street at the Site Drive. On Saturdays, nearly 14,000 new (adjusted) trips will occur, meaning that Site Generated Trips alone would almost double the existing volumes of 9,449 taken on Saturday, September 30, 2006. Even when compared to the 2011 No Build, as shown in Table 6-8, on an intersection basis, increases of nearly 60% in weekday evening peak hour volume at the South Main Street/Route 24 SB Ramp intersection are experienced; for the Saturday peak hour, volumes at this intersection more than double with the addition of project related trips.

These changes could have a negative impact on emergency response times and other service delivery measures for the residents and businesses along the study corridor, particularly for residents and businesses of the Assonet Bay Shores neighborhood, whose only access to the rest of Freetown is via Narrows Road, just west of the proposed site. With only 30 feet of available pavement width underneath the bridge carrying Route 24 over South Main Street, any queuing that develops in this segment of South Main Street may impact fire and police access, as there is limited room for vehicles to pull off to allow emergency vehicles (fire trucks, in particular) to pass. Should a roundabout alternative be selected, it is unclear if there is sufficient room for emergency vehicles to bypass potential queues at the roundabout approach legs, based on the concept plans provided in the SSFEIR. With the outstanding questions raised about the traffic analysis performed, it remains difficult to provide a thorough review of what these impacts may be.

### **Mitigation**

A significant mitigation program (including three alternatives for the Site Driveway and the Route 24 ramps) has been proposed in the SSFEIR to offset the transportation impacts of the Project. Part of this program includes travel demand management measures and a proposed holiday traffic monitoring and management program, to deal with expected traffic increases in the study area during the peak holiday shopping season. This portion of the mitigation includes providing police details at up to five intersections along South Main Street (Narrows Road, the site driveway, the Route 24 ramps, and Water Street/Elm Street) for a five-year period.

**The SSFEIR does not provide any supporting information, such as holiday trip generation or peak holiday period traffic analysis, to determine if the proposed provision of police details will adequately handle the level of expected holiday period traffic this project will generate.**

While we recognize that holiday traffic should not be the basis for design, such justification and

supporting data should be provided to determine the adequacy of the peak holiday period traffic management plan.

Concept-level mitigation plans have also been developed at the locations demonstrated to have substantial degradation of service. The mitigation items proposed between the Site Driveway and the Route 24 NB Ramps appear to offset the increase in traffic so that these locations operate at acceptable levels. However, as mentioned earlier, we were unable to review Alternatives 2 and 3 because the roundabout analysis worksheets (using the VISSIM software package) were not included in the SSFEIR. **We again urgently and respectfully request that either no decision or an inadequate finding on the SSFEIR be rendered by MEPA until the Proponent provides this analysis for review and comment.** Additionally, as discussed in the Results section of this letter, vehicle queuing will be problematic even with the signals proposed in Alternative 1. Because through movement queues exceed the storage length of a turning lane, the queued traffic blocks turning vehicles from moving into the turning lanes. As a result, **delays for turning vehicles will be longer than reported, and queues for the through movements will be longer** because turning vehicles will be queuing in the through lane while being blocked from the turning lane.

The three alternatives presented in the SSFEIR are still concepts, and a review of the analysis performed raises the same questions we described earlier in the Methodology section of this letter. The mitigation items proposed at the South Main Street/North Main Street/Elm Street/Water Street intersection and the Elm Street/Mill Street intersection do not improve capacity at these intersections. It is also important to note that although the status of the construction of the new interchange on Route 24 between Exits 8 and 9 and the development of the Fall River Executive Park (FREP) has been considered as part of the post-build analysis, the Payne's Crossing project should adequately mitigate its impacts without reliance on infrastructure improvements proposed as part of the FREP project or any other project.

All mitigation measures proposed must be committed to by the Developer and all issues related to right-of-way acquisition, design, and permitting fully explored. While the mitigation concepts proposed are preliminary, and must undergo a complete design process, the following comments should be incorporated into that process.

#### Site Driveway

- While concurrent pedestrian phasing was assumed at this location for Alternative 1, it is unclear how much future pedestrian traffic the project may attract. For this reason, pedestrian crossings at this location should be further accounted for in the traffic capacity analysis as they may need to operate as an exclusive pedestrian phase and could potentially further degrade overall operations of the intersection.

Route 24 Ramps

- Acceleration lanes for the Route 24 on-ramps in both directions at their junctions with the mainline should be increased and brought to current MassHighway standards.
- Given the demonstrated truck volumes at this exit, truck turning templates should be shown at all approaches. **This was requested in previous comments and not provided in the SSFEIR.**

South Main Street/North Main Street/Water Street/Elm Street

- Pedestrian analysis at this location should be completed. **This was requested in previous comments and not provided in the SSFEIR.**

**Conclusion**

McMahon Associates has completed a review of the transportation section of the Second Supplemental Final Environmental Impact Report (SSFEIR) filed in accordance with the Massachusetts Environmental Policy Act (MEPA) for the Payne's Crossing Project. Based on the comments in this letter and given the overall size of the Project and the changes in use and character it will instill on the surrounding corridor, a more thorough understanding of several of the Project's impacts remains necessary.

Significant issues still remain with regard to the traffic impacts of this project, based on missing or incomplete information in the SSFEIR. We were unable to review two of the three mitigation alternatives presented in the SSFEIR because **analysis of any alternatives involving proposed roundabouts was not included in the SSFEIR**. The lack of this information impairs our ability to fully comment on the impacts of the proposed mitigation. Additionally, our prior comments and recommendations on improving the Build condition analysis were not incorporated in the Build condition analysis of the SSFEIR, but were instead provided in a **separate "sensitivity analysis" which essentially disregards our recommendations**. Further, **the sensitivity analysis presented in the SSFEIR incorrectly applies some of our assumptions**, placing the validity of the sensitivity analysis and its comparison to the Build condition analysis by the Proponent in question. Finally, in reviewing the signalized alternative for mitigation for which analysis was provided, we found that **queues may still impact access to the Route 24 ramps**. The extent of the impact of this queuing remains unclear, based on our concerns with the Build condition analysis and our inability to review the roundabout analysis for two of the three mitigation alternatives. We urgently and respectfully request that either **no decision or an inadequate finding on the SSFEIR be rendered by MEPA until the Proponent provides additional information** requested in this letter for review and comment.

Payne's Crossing

EEA # 01982

Pg. 16

If you should have any questions or require further information, please feel free to contact us.

Very truly yours,

A handwritten signature in black ink, appearing to read "Gary McNaughton". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Gary McNaughton, P.E., PTOE

Vice President and General Manager

A handwritten signature in black ink, appearing to read "Steven C. Findlen". The signature is cursive and somewhat compact, with a distinct "S" and "F".

Steven C. Findlen

Project Manager

October 27, 2008

Secretary Ian A. Bowles  
Executive Office of Energy and Environmental Affairs  
Attention: MEPA Office  
Nicholas Zavalas, EEA No. 01982  
100 Cambridge Street, Suite 900  
Boston, MA 02114

RE: Payne's Crossing Proposed Retail Center  
Traffic Peer Review of SSFEIR for EEA #01982  
McMahon Project No. Y07537.13

**PRINCIPALS**

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Thomas A. Hall  
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Dear Secretary Bowles:

McMahon Associates has completed a review of the transportation section of the Second Supplemental Final Environmental Impact Report (SSFEIR) filed on September 2, 2008 and re-filed on September 30, 2008 in accordance with the Massachusetts Environmental Policy Act (MEPA) for the Payne's Crossing Project in Freetown, MA. The SSFEIR for the Payne's Crossing Project is in response to the certificate issued by the Secretary of the Executive Office of Energy and Environmental Affairs (EEA) issued on January 9, 2008 on the 3<sup>rd</sup> Notice of Project Change (3<sup>rd</sup> NPC) for EEA # 01982.

The purpose of this letter is to present our comments on the SSFEIR for the proposed development. Significant issues still remain with regard to the traffic impacts of this project, based on missing or incomplete information included in the SSFEIR. We were unable to review two of the three mitigation alternatives presented in the SSFEIR because **analysis of any alternatives involving proposed roundabouts was not included in the SSFEIR**. The lack of this information impairs our ability to fully comment on the impacts of the proposed mitigation. Additionally, our prior comments and recommendations on modifying the Build condition analysis were not incorporated in the SSFEIR, but were instead provided in a **separate "sensitivity analysis" which essentially disregards our recommendations**. Further, **the sensitivity analysis presented in the SSFEIR incorrectly applies some of our assumptions**, placing the validity of the sensitivity analysis and its comparison to the Build condition analysis by the Proponent in question. Finally, in reviewing the signalized alternative for mitigation for which analysis was provided, we found that **queues may still impact access to the Route 24 ramps**. The extent of the impact of this queuing remains unclear, based on our concerns with the Build condition analysis and our inability to review the roundabout analysis for two of the three mitigation alternatives. We urgently and respectfully request that either **no decision or an inadequate finding on the SSFEIR be rendered by MEPA until the Proponent provides additional information** requested in this letter for review and comment.

### **Project Description**

The Payne's Crossing SSFEIR is the most recent of a series of environmental filings for the Freetown Fly Ash Site landfill. The proposal involves construction of a retail development on an almost 81 acre site located on South Main Street, and bordered by the Assonet River, Assonet Bay and the Massachusetts Route 24 limited access highway in Freetown. The current Project involves the construction of an overall 377,000 sq. ft. retail center that includes a 167,000 sq. ft. home improvement center, a 195,000 sq. ft. discount superstore, and 15,000 sq. ft. of retail space. (The 3<sup>rd</sup> NPC filing in December 2007 discontinued a previously proposed second phase of the project which had included three non-specified retail components of the following sizes: 30,000 sq. ft., 22,400 sq. ft., and 16,400 sq. ft.; 5,220 sq. ft. of restaurant space; and 6,670 sq. ft. of office space, totaling 80,690 sq. ft.)

### **MassHighway Coordination**

The traffic mitigation section of the SSFEIR provides three alternative strategies for mitigation in the vicinity of the Route 24 interchange ramps and the proposed site driveway. These alternatives include installing signals, roundabouts, or a "hybrid" alternative using a signal and a roundabout. The SSFEIR also states that the Massachusetts Highway Department (MassHighway) has reviewed and deemed these alternatives acceptable, as a result of a series of meetings held after the Secretary's decision on the 3<sup>rd</sup> NPC between the Proponent and MassHighway Boston and District 5 staff. No documentation of these meetings or formal MassHighway acceptance of the proposed mitigation was included in the SSFEIR. We anticipate that MassHighway will review and comment on the analysis presented in the SSFEIR and provide those comments to the MEPA Office.

Further discussion of the proposed traffic mitigation, including our comments, can be found later in this letter.

### **Transportation Section Comments**

McMahon Associates has submitted comments on the Transportation Section for each of the submissions by the Proponent through the MEPA review process. Upon reviewing the SSFEIR, it appears that several comments we have previously provided on this project have been incorporated in a "sensitivity analysis", provided as a sub-section to the Transportation portion of the SSFEIR. McMahon Associates believes that our prior recommendations should have been incorporated in the Proponent's Build and Build with Mitigation analysis scenarios and not set aside in a separate analysis that has simply been disregarded by the Proponent. Additionally, some of our recommendations were not applied appropriately in the sensitivity analysis, leading us to question the validity of the Proponent's sensitivity analysis, particularly with regard to vehicle queuing along South Main Street.

The SSFEIR has also been revised to provide information requested in prior comment letters, such as a mainline ramp analysis of the Route 24 Exit 9 interchange. Below we have provided a

detailed review of each of the aspects of the transportation section, including the sensitivity analysis, of the SSFEIR.

### **Study Area**

The comments below about the study area were also made in review of the SEIR, the SFEIR, and the 3<sup>rd</sup> NPC. **No study area changes were made in the SSFEIR to address these comments.**

The Study Area prepared for the traffic impact analysis is the minimum area required by the MEPA certificate, and covers the Main Street Corridor (north and south) from the Route 24 ramps at Exit 10 southward to the Stop & Shop Driveway. The analyzed area includes all significant intersections on Main Street within the study area limits, as well as the Elm Street/Mill Street intersection just east of downtown Freetown. Though the Study area is responsive to the MEPA requirements, MEPA comments on the previous NPC filed in September 2006 requested that additional areas be evaluated. The potential impacts of the Project on the following additional areas (not included in the SSFEIR) should be evaluated:

#### Route 24 Exit 8 Ramps/Airport Road/North Main Street

According to the Trip Distribution provided in the SSFEIR, 15% of all project-related trips are stated to come from south of the Stop & Shop Driveway. With only minor localized intersections between the Stop & Shop Drive & the Airport Road/Exit 8 intersection, it can be assumed that most of this 15% will traverse this intersection. This represents 134 vehicles in the PM peak and 215 vehicles during the Saturday peak hour, based on the trip generation figures presented in the SSFEIR. To the North, the study area along Main Street extended to the Exit 10 ramps from Route 24, despite the attribution of only 5% of Project trips to this location.

### **Background Growth**

The following comments about background growth were also made in review of the SEIR, the SFEIR, and the 3<sup>rd</sup> NPC; **these comments have NOT been addressed.**

The SSFEIR evaluated a future scenario accounting for traffic generated by other proposed developments in the area, as well as a background growth rate. This information and analysis was prepared for a 5-year horizon (2011) and forms a picture of the transportation system on which to evaluate the proposed Project. In the SSFEIR, the Proponent evaluated two scenarios of future growth, a standard 2011 No-Build with expected growth at that time, and a post-build scenario that included the full build out proposed by several larger projects in the area, (Riverfront Business Park, Fall River Executive Park, Route 24 Access Improvements, and New Bedford/Fall River commuter rail), along with full build out of the Payne's Crossing project.

For the 2011 No-Build, the SSFEIR adds the traffic from the Boston Beer brewery proposed to be built in the Campanelli Business Park, accessed via Ridge Hill Road, off South Main Street, in the Project Area. It is our understanding that Boston Beer has abandoned their plans for this project. The SSFEIR indicates that the forecasted traffic from this project was included in the

No-Build network to present a conservative scenario, which is appropriate to consider other development potential for the Boston Beer property. However, the Proponent should provide an update on the status of the Boston Beer property. **Our previous comments on the SFEIR and 3<sup>rd</sup> NPC requested this information.**

Additionally, a 2.0% background growth rate (compounded annually) was used and incorporated into the analysis. The 2.0% growth rate was based upon a review of counts taken at a nearby MHD count station on Route 140 between 1998 and 2004, which showed a 2.8% annual growth. The SSFEIR then states, "Assuming background development in the vicinity of the project will be limited for the next five years, an annual growth rate of two percent was applied.<sup>1</sup>" The SSFEIR should provide further basis for use of the 2.0% annual growth number considering the observed 2.8% annual growth, which, when compounded annually, would result in an overall 14.8% background growth. **The SSFEIR did not adequately respond to this comment, which was also made in review of the SEIR, SFEIR, and the 3<sup>rd</sup> NPC.** The Proponent should either confirm the growth rate with the Southeastern Regional Planning & Economic Development District (SRPEDD), check its consistency with the rate used by the Boston Beer project, or compare the new counts taken on adjacent roads with those taken as part of the permitting for the Stop & Shop Distribution facility or other projects for a more localized comparison.

### **Sensitivity Analysis Overview**

The SSFEIR has included a separate "sensitivity analysis" for the Build with Mitigation scenario, which incorporates our prior recommendations for trip generation, trip distribution, and capacity analysis parameters. This sensitivity analysis stands as the Proponent's response to our previous comments and recommendations. The Proponent concludes that application of our recommendations does not result in a significantly different analysis from what is presented as the Build with Mitigation analysis in the SSFEIR. For this reason, none of our recommendations were actually incorporated in the Proponent's Build or Build with Mitigation analysis scenarios detailed in the SSFEIR.

McMahon Associates believes that our prior recommendations should have been incorporated in the Proponent's Build and Build with Mitigation analysis scenarios and not set aside in a separate analysis that has simply been disregarded by the Proponent. Additionally, as our comments later in this letter will reflect, some of our recommendations were not applied appropriately in the sensitivity analysis. For this reason, we question the validity of the Proponent's sensitivity analysis and its subsequent comparison with the Proponent's Build with Mitigation analysis.

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<sup>1</sup> Section 6.3.1, Payne's Crossing SSFEIR

### **Trip Generation Methodology**

The building program calls for the development of the 167,000 sq. ft. Home Improvement Store, the 195,000 sq. ft. Free Standing Discount Superstore, and 15,000 sq. ft. of retail space. The vehicle trips associated with the Free Standing Discount Store and retail space were developed by using the associated land use codes from the Institute of Transportation Engineers (ITE) publication *Trip Generation, 7th Edition, 2003*. The ITE publication has specific codes for a Free Standing Discount Superstore (LU Code 813) and a Home Improvement Superstore (LU Code 862), which were used appropriately in the analysis. It should be noted that previous submittals used tenant-specific rates based on empirical data collected at sixteen Lowe's Home Improvement Warehouse Facilities. A weighted empirical average trip generation rate was developed from this data; resulting in tenant-specific peak hour trip rates approximately 25 to 33 percent lower than the ITE trip rates for a Home Improvement Superstore. The ITE trip rates used in the SSFEIR result in a more conservative trip generation estimate, and are consistent with trip generation estimates contained in a memo from Tetra Tech Rizzo (included as part of the 3<sup>rd</sup> NPC), dated October 11, 2007, detailing supplemental analysis requested by MassHighway for the 2011 Build condition.

Specific uses for the 15,000 sq. ft. of retail space were not defined within the SSFEIR, so the more general code for Shopping Center (LU Code 820) was used to project volumes for that portion of the Project development. The size of the Discount Superstore and the Home Improvement Store together is 362,000 sq. ft. Trip generation for the retail portion was estimated by subtracting the generated trips for a Shopping Center of 362,000 sq. ft. from the generated trips for a Shopping Center of 377,000 sq. ft. Alternate methods exist for generating trips for the 15,000 sq. ft. of retail space. However, differences between these alternate methods would not affect the overall results of the analysis presented in the SSFEIR.

Based on the building program as currently proposed, the trip generation approach used in the SSFEIR is one of a few ways to estimate trip generation for the Payne's Crossing project. Use of the ITE land use code for Shopping Center applied to 377,000 sq. ft. of retail space could also be considered, particularly if alternate, non-specific retail uses are considered in future development of this project. Such an application of the Shopping Center land use code would result in a greater number of project-generated trips, during both peak hours (ranging from a 22% to 43% increase) and for daily trips (a 25% increase). However, given that the currently proposed building program is clearly defined, the trip generation methodology presented in the SSFEIR, while slightly different than what was presented in previous submittals to MEPA, is acceptable for the proposed project and generally conforms to standard engineering practice.

### **Internal Capture Rate**

The ITE Trip Generation determined Daily and Peak Hour projections for a typical Weekday and Saturday. Unadjusted trip volumes were 15,872 for a weekday, with 1,216 occurring during the PM peak hour. On Saturday these numbers were 20,342 daily and 1,970 during the peak hour (11AM-12PM). An internal capture rate of 14% peak and 19% daily trips was then

applied to the Proponent's Build condition volumes, which corresponds to 163 trips during the weekday peak hour and 288 trips during the Saturday peak hour. The internal trip rate is intended to account for those trips destined for more than one use within a Site. The SSFEIR details the methodology and ITE calculations used to determine the internal capture rate. While the methodology applied is in keeping with ITE standards, capture rates are often best applied for truly mixed use developments such as joint office, residential and retail developments. The ITE manual further warns that data is limited for use of internal capture rates and they should be applied with caution. While undoubtedly some patrons of the Project will visit both the home improvement and discount stores, lower internal capture rates would have been more appropriate given the nature of this development.

In our previous comments, we recommended internal capture rates of 5% peak and 10% daily trips be used to reflect more realistic conditions. These percentages were used in the sensitivity analysis.

#### Pass By Rates

After applying the internal capture rate, the SSFEIR utilized a pass-by rate, which is intended to account for trips that are drawn from the existing traffic stream. Though these are "new" trips to the Site, they are not "new" to the surrounding roadways. The SSFEIR states that although MEPA allows up to a 25% pass-by rate, a more conservative 15% pass-by rate was used in the Proponent's Build condition analysis to account for the lower volumes on South Main Street.

Even with the 15% rate used, the 1,948 weekday daily trips counted as pass by **represent 16.9% of the total existing volume on South Main Street**. For Saturday, the 2,468 daily trips counted as pass by **represent 26.0% of the total existing volume on South Main Street**. These volumes represent a significant percentage of the existing traffic to be assumed to divert from the adjacent roadway. While the statement that MEPA allows a 25% pass by rate is accurate, it can be misleading because MEPA actually caps the pass by rate credit at 25% regardless of supporting evidence. In the SSFEIR, no supporting evidence for the pass-by rate used is provided. It is more likely that the majority of trips that may be viewed as pass-by are actually diverted link trips from Route 24. In fact, the SSFEIR treats all trips coming from Route 24 as new trips to the roadway system. In our previous comments, we recommended that either a lower pass-by rate be utilized or a more thorough analysis of a combination of pass by and diverted link trips between Route 24 and South Main Street be conducted.

Our previous comments recommended that the full 25% pass-by credit allowed by MEPA be used, applied proportionately to South Main Street (5% pass-by rate) and Route 24 (20% of project trips diverted to the Exit 9 ramps), based on daily volumes. Both of these recommendations were incorporated in the sensitivity analysis.

In summary, a comparison of trip generation between information contained in the Proponent's Build condition analysis and the sensitivity analysis shows an additional 2,910 vehicles will

enter the study area on a typical weekday; this number increases to 3,718 vehicles on a typical Saturday. This increased number of vehicles using local roadways will impact the operation of the study area intersections – most notably, the Route 24 ramp intersections and the Site Drive intersection on South Main Street.

### **Trip Distribution**

The following comments regarding trip distribution were also made during the review of the SEIR, the SFEIR, and the 3<sup>rd</sup> NPC. **NO changes to the trip distribution for the Proponent's Build condition analysis were made to address these issues.**

Project trip distribution was prepared to allocate the “new” trips to the Site along the surrounding roadways. The distribution was prepared appropriately based on a review of census data, existing traffic patterns, and competing shopping centers. Given the location of the Site, the majority (55%) of trips are expected to come from Route 24. The remaining trips are shown to use the North/South Main Street corridor to reach the Site. While the overall methodology is sound, some adjustments should have been made to account for the following inconsistencies:

- 5% of trips are shown to use Copicut Road, which is lightly traveled. Projected trips are 3 to 4 times existing volumes.
- No Site trips are projected to use Narrows Road, despite the fact that 40% of PM peak (54% on Saturdays) southbound South Main Street traffic turns right onto Narrows Road. The assumption that no trips originate from or are destined to Narrows Road is not reasonable.
- No Site trips are proposed for Ridge Hill Road.
- Project generated trips are shown using the Route 24 Ramps at Exit 10 headed South, as well as trips on North Main Street. The combination of these two values does not add to the 5% shown on the trip distribution.

Based on these comments, we have recommended the following distribution of trips listed in Table 1 below (which were used in the sensitivity analysis included in the SSFEIR); we have further refined our recommendations to account for project traffic using Narrows Road:

Table 1: Revised Project Trip Distribution Pattern

<u>Route/Direction</u>	<u>Proponent</u>	<u>Proportion of Site Trips</u>	
		<u>Sensitivity Analysis</u>	<u>McMahon</u>
To/from the south via Route 24	40%	54%	54%
To/from the north via Route 24	15%	20%	20%
To/from the south via South Main Street	15%	5%	4%
To/from the south via Narrows Road	0%	0%	1%
To/from the east via Copicut Road	5%	1%	1%
To/from the west via North Main Street	5%	5%	5%
To/from the east via Mill Street	10%	10%	10%
To/from the east via Elm Street	10%	5%	5%
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

### **Capacity Analysis Comments**

A traffic operations capacity analysis was included in the SSFEIR. This analysis covers the following scenarios:

- Existing Conditions (2006),
- No Build (2011),
- Build (2011),
- Build with Mitigation (2011),
- Sensitivity Analysis (based on our previous comments as described earlier), and
- Post Build.

All analyses were completed based on the *2000 Highway Capacity Manual* with summary tables provided in the report and worksheets provided in the appendices. The Existing, No Build, and Build scenarios reviewed every intersection in the Study Area for the weekday evening & Saturday mid-day peaks, except the Post Build scenario, which reviewed the PM Peak only. Synchro 6.0 software was used to analyze peak hour operations at the studied intersections.

Three mitigation alternatives were presented in the SSFEIR:

- Alternative 1 – Signalized Alternative: This alternative would involve installing traffic signals and making capacity improvements along South Main Street at its intersections with the proposed Site Driveway and the Route 24 ramps.
- Alternative 2 – Roundabout Alternative: This alternative would involve installing roundabouts at the South Main Street intersections with the proposed Site Driveway and the Route 24 Northbound ramps. Additionally, the Route 24 Southbound Ramps intersection would be modified to eliminate all left turns and a new Route 24 Southbound on-ramp would be constructed at the roundabout intersection at the Site Driveway.
- Alternative 3 – Hybrid Alternative: This alternative is comprised of the traffic signal and roadway capacity improvements at the Route 24 Northbound ramps intersection from Alternative 1, combined with the roundabout concept and associated roadway

redevelopment (including the proposed new Route 24 Southbound on-ramp) from Alternative 2.

We were unable to review Alternatives 2 and 3 because the roundabout analysis worksheets (using the VISSIM software package) were not included in the SSFEIR. **We urgently and respectfully request that either no decision or an inadequate finding on the SSFEIR be rendered by MEPA until the Proponent provides this analysis for review and comment.** Delay and queue summaries for the roundabout alternatives are provided in the SSFEIR (in Tables 6-11 and 6-12); however, without the supporting analysis, we are unable to properly comment on the merit of these alternatives.

For the balance of this comment letter, due to lack of information, our review and comments corresponding to capacity analysis will reflect Alternative 1 (Signal Alternative) as the mitigation for this project.

#### Methodology

Subject to the comments of incomplete or missing information given below, the methodology used to determine the Level of Service (LOS), delays, volume to capacity (V/C) ratios, and other measurable traffic conditions in the SSFEIR is generally acceptable. A thorough review of all of the inputs and outputs utilized in the analysis for each scenario is difficult because some of the information is not included in the report or its appendices. Any of the questions raised here may or may not have an impact on the overall level of service or capacity at the study intersections. Regardless, the specific methods and inputs used should be demonstrated or explained in response to the comments listed below:

- Existing conditions show significant truck volumes (ranging from 4.6 to 9.3% of total intersection volume in the PM Peak between southbound Exit 9 ramps and the Stop & Shop driveway), but the unsignalized intersection analysis worksheets do not show the heavy vehicle percentage used. There is no way to verify that the appropriate heavy vehicle percentage was used in the analysis.
- Peak hour factors (PHF) appear to have been calculated for each intersection for the Existing and No Build conditions. However, for the Build conditions, a default rate of 0.95 was used across the board for all movements of all intersections. Where levels of traffic being generated are significant, it is acceptable to use the default PHF specified in the Highway Capacity Manual, which is 0.92. However, under no circumstances should the PHF be changed for an approach to which no traffic is being added. In fact, it is common practice to **keep the PHF constant at existing intersection approaches through all analysis conditions**, regardless of projected traffic fluctuations.

For example, the Stop & Shop Driveway has a PHF of 0.60 in the Existing Condition. No traffic is proposed to be distributed to that driveway for this Project, yet the PHF for the build conditions was changed to 0.95. As a result of changing the PHF in the Synchro analysis, **the reported delays, V/C ratios, and queues are shown to be lower than they**

**realistically will be.** It should be noted that in the “sensitivity analysis” developed to address our prior comments, a 0.92 PHF was used across the board, in a similar fashion to the 0.95 PHF used in the Build conditions. **This methodology is incorrect, and the Build analysis should be changed so that the PHF for existing intersection approaches remains unchanged.** This important point impacts the queuing analysis, as will be shown later in this letter.

### Results

It is important to note that the deficiencies in the Study Area, Trip Generation, and Trip Distribution analyses listed above carry through to the Build scenario, therefore leaving all capacity analysis results with unanswered questions. As the percent heavy vehicles inputs in the Synchro results cannot be thoroughly reviewed and with inappropriate assumptions about peak hour factors, it is difficult to assess the results provided with confidence. However, based upon the information provided, a general review of the potential impacts of the Project can be completed. Based on the SSFEIR, it appears that only certain intersections experience significant degradation of LOS or increases in delay. This is most likely owing to the capacity of the roadway system, and relatively light level of existing traffic.

The primary impacts shown are at the Site Driveway; the Exit 9 off-ramps at South Main Street; the Elm Street westbound approach at its intersection with North Main Street, South Main Street, and Water Streets; and the Elm Street westbound approach at its intersection with Mill Street. The SSFEIR proposes significant mitigation for each of these intersections, with a total program of approximately \$4 million, including roadway widening, signal systems and/or roundabouts, and other roadway improvements. As the analysis shows that other locations are minimally impacted, no specific mitigation is proposed. Ridge Hill Road shows significant approach delays in the 2011 scenarios, but these delays are shown largely as No-Build issues.

The Elm Street westbound approach at its intersection with Mill Street shows degrading LOS from the No Build scenario to the Build scenario. For the Saturday peak hour, the No Build LOS is shown as C which degrades to LOS E in the Build scenario. The proposed mitigation for this intersection does not involve any capacity improvements, so even with mitigation, the exit from Elm Street operates at a degraded LOS.

In the sensitivity analysis provided in the SSFEIR, the Elm Street approach at the intersection of South Main Street, North Main Street, Elm Street, and Water Street degrades from LOS D in the No Build to LOS E in the Build scenario during the Saturday peak hour. The proposed mitigation for this intersection does not involve any capacity improvements, so even with mitigation, the Elm Street movement operates at a degraded LOS.

### Queuing

In reviewing the SSFEIR, several of the queuing results from the capacity analysis stand out. There are time periods and locations at which **through movement queuing extends beyond the**

**length of the turn lanes causing congestion.** When a through movement queue exceeds the storage length of a turning lane, the queued traffic blocks turning vehicles from moving into the turning lanes. As a result, delays for turning vehicles will be longer than reported, and queues for the through movements will be longer because turning vehicles will be queuing in the through lane while being blocked from the turning lane. It should be noted that **Synchro methodology does not account for turning vehicles that are blocked from entering turning lanes by queued vehicles, thus reporting lower delays than would actually occur.** While some of the proposed turn lanes can be extended to accommodate congested conditions, the turn lanes between the proposed site driveway and the Route 24 northbound ramps are unable to be lengthened without either modifying the location of the intersecting roadways or widening the bridge abutments carrying Route 24 over South Main Street. The shifting of the site driveway location further east than was shown in previous MEPA submittals further reduces the available queue storage between the site driveway and the Route 24 Southbound ramps.

As stated earlier, we have significant questions about how the Build conditions network and analysis was developed. While the sensitivity analysis comes closer to our view of how the Build analysis should have been performed, we have reservations about how our recommendations were applied – particularly, the use of Peak Hour Factors. McMahon Associates had conducted an independent analysis of the study area in preparing our comments on the 3<sup>rd</sup> NPC; our recommendations were used in this analysis and indicate additional queuing issues not previously reported by the Proponent. With the updated trip generation provided in the SSFEIR, we have revisited this analysis to help develop comments on the SSFEIR.

Under the Build with Mitigation scenario (using Alternative 1), signals are proposed for three intersections: Site Driveway at South Main Street, Route 24 SB Ramps at South Main Street, and Route 24 NB Ramps at South Main Street. As a result of installing signals, mainline traffic on South Main Street, which was formerly free-flowing, would be stopped during part of each cycle, causing vehicles to queue on South Main Street. Based on the sensitivity analysis performed in the SSFEIR, the following queuing problems will exist after the Project is built with Alternative 1:

Route 24 SB Ramps at South Main Street

- South Main Street EB thru – 95% queue exceeds storage length of EB left turn and through lanes (Saturday midday peak hour)

Based on our analysis, the following additional locations may also experience queuing problems after the Project is built with Alternative 1:

Site Driveway at South Main Street

- South Main Street EB through – 95% queues exceed storage length of EB left turn lanes (weekday PM peak hour)
- South Main Street WB right – average and 95% queues exceed storage length of SB through and right turn lanes (Saturday midday peak hour)
- Site Driveway SB left –95% queues exceed storage length of SB left turn lanes (Saturday midday peak hour)

Route 24 SB Ramps at South Main Street

- South Main Street EB left – 95% queues exceed storage length of EB left turn and through lanes (Saturday midday peak hour)
- South Main Street WB through – average and 95% queues exceed storage length of WB through and right turn lanes (Saturday midday peak hour)

In addition, these reported queues may at times be exceeded, since Synchro only reports queue results at congested locations after two traffic signal cycles. Our analysis of the South Main Street WB through movement suggests that **queues may routinely back up to and beyond the bridge carrying Route 24 over South Main Street**. As stated earlier, turn lanes at this approach cannot be extended unless **the bridge carrying Route 24 over South Main Street is widened**.

**Route 24 Mainline Analysis**

Route 24 is a limited access highway, owned and operated by MassHighway running from the Rhode Island border to the south to I-93 in Randolph to the north. Our December 27, 2007 comment letter on the 3<sup>rd</sup> NPC, as well as prior comments from the Massachusetts Executive Office of Transportation (EOT) requests a review of the Project's impacts to the Route 24 mainline.

A Route 24 mainline ramp analysis was provided in the SSFEIR that analyzed merging and diverging operations at the Exit 9 on- and off-ramps, based on methods outlined in the Highway Capacity Manual. The analysis stated that in the Build condition, all ramp junctions operate at LOS C or better, with the exception of the Route 24 Southbound on-ramp, which experience LOS D in the weekday evening peak hour. The analysis indicates that volumes for the Route 24 mainline were obtained from the Environmental Impact Report for the Fall River Executive Park project, and that no diverted trips were taken into account for the analysis, in order to remain conservative. However, it is unclear what growth rates were used for the Route 24 volumes. No accident data was provided for the Route 24 mainline at the Exit 9 ramp junctions. Also, while the report states that ramp volumes in the analysis were taken from the data collection for the SSFEIR, the ramp volumes in the analysis worksheets do not match the peak hour volume figures. Additionally, the report noted that acceleration lengths for the two Route 24 on-ramps at Exit 9 were approximately 200 feet shorter than current MassHighway standards. Project trips account for at least 30% and up to 53% of the on-ramp volumes in the Build condition, which introduces a potential safety issue at the ramps' junctions with the Route

24 mainline. No potential mitigation for the Route 24 on-ramps was discussed in the SSFEIR to alleviate this condition. **All of these issues need to be addressed by the Proponent.**

### **Safety Concerns and Overall Impacts**

It is clear that the Project will represent a significant change in the character and use of the North and South Main Street corridor. Regardless of the results of the individual intersection impact analysis, the Project as reported will generate over 11,000 new (adjusted) trips per weekday, with nearly 900 new trips during the PM peak hour. The traffic count shown in the SSFEIR from Thursday, September 28, 2006 showed 11,497 trips on South Main Street at the Site Drive. On Saturdays, nearly 14,000 new (adjusted) trips will occur, meaning that Site Generated Trips alone would almost double the existing volumes of 9,449 taken on Saturday, September 30, 2006. Even when compared to the 2011 No Build, as shown in Table 6-8, on an intersection basis, increases of nearly 60% in weekday evening peak hour volume at the South Main Street/Route 24 SB Ramp intersection are experienced; for the Saturday peak hour, volumes at this intersection more than double with the addition of project related trips.

These changes could have a negative impact on emergency response times and other service delivery measures for the residents and businesses along the study corridor, particularly for residents and businesses of the Assonet Bay Shores neighborhood, whose only access to the rest of Freetown is via Narrows Road, just west of the proposed site. With only 30 feet of available pavement width underneath the bridge carrying Route 24 over South Main Street, any queuing that develops in this segment of South Main Street may impact fire and police access, as there is limited room for vehicles to pull off to allow emergency vehicles (fire trucks, in particular) to pass. Should a roundabout alternative be selected, it is unclear if there is sufficient room for emergency vehicles to bypass potential queues at the roundabout approach legs, based on the concept plans provided in the SSFEIR. With the outstanding questions raised about the traffic analysis performed, it remains difficult to provide a thorough review of what these impacts may be.

### **Mitigation**

A significant mitigation program (including three alternatives for the Site Driveway and the Route 24 ramps) has been proposed in the SSFEIR to offset the transportation impacts of the Project. Part of this program includes travel demand management measures and a proposed holiday traffic monitoring and management program, to deal with expected traffic increases in the study area during the peak holiday shopping season. This portion of the mitigation includes providing police details at up to five intersections along South Main Street (Narrows Road, the site driveway, the Route 24 ramps, and Water Street/Elm Street) for a five-year period.

**The SSFEIR does not provide any supporting information, such as holiday trip generation or peak holiday period traffic analysis, to determine if the proposed provision of police details will adequately handle the level of expected holiday period traffic this project will generate.**

While we recognize that holiday traffic should not be the basis for design, such justification and

supporting data should be provided to determine the adequacy of the peak holiday period traffic management plan.

Concept-level mitigation plans have also been developed at the locations demonstrated to have substantial degradation of service. The mitigation items proposed between the Site Driveway and the Route 24 NB Ramps appear to offset the increase in traffic so that these locations operate at acceptable levels. However, as mentioned earlier, we were unable to review Alternatives 2 and 3 because the roundabout analysis worksheets (using the VISSIM software package) were not included in the SSFEIR. **We again urgently and respectfully request that either no decision or an inadequate finding on the SSFEIR be rendered by MEPA until the Proponent provides this analysis for review and comment.** Additionally, as discussed in the Results section of this letter, vehicle queuing will be problematic even with the signals proposed in Alternative 1. Because through movement queues exceed the storage length of a turning lane, the queued traffic blocks turning vehicles from moving into the turning lanes. As a result, **delays for turning vehicles will be longer than reported, and queues for the through movements will be longer** because turning vehicles will be queuing in the through lane while being blocked from the turning lane.

The three alternatives presented in the SSFEIR are still concepts, and a review of the analysis performed raises the same questions we described earlier in the Methodology section of this letter. The mitigation items proposed at the South Main Street/North Main Street/Elm Street/Water Street intersection and the Elm Street/Mill Street intersection do not improve capacity at these intersections. It is also important to note that although the status of the construction of the new interchange on Route 24 between Exits 8 and 9 and the development of the Fall River Executive Park (FREP) has been considered as part of the post-build analysis, the Payne's Crossing project should adequately mitigate its impacts without reliance on infrastructure improvements proposed as part of the FREP project or any other project.

All mitigation measures proposed must be committed to by the Developer and all issues related to right-of-way acquisition, design, and permitting fully explored. While the mitigation concepts proposed are preliminary, and must undergo a complete design process, the following comments should be incorporated into that process.

#### Site Driveway

- While concurrent pedestrian phasing was assumed at this location for Alternative 1, it is unclear how much future pedestrian traffic the project may attract. For this reason, pedestrian crossings at this location should be further accounted for in the traffic capacity analysis as they may need to operate as an exclusive pedestrian phase and could potentially further degrade overall operations of the intersection.

Route 24 Ramps

- Acceleration lanes for the Route 24 on-ramps in both directions at their junctions with the mainline should be increased and brought to current MassHighway standards.
- Given the demonstrated truck volumes at this exit, truck turning templates should be shown at all approaches. **This was requested in previous comments and not provided in the SSFEIR.**

South Main Street/North Main Street/Water Street/Elm Street

- Pedestrian analysis at this location should be completed. **This was requested in previous comments and not provided in the SSFEIR.**

**Conclusion**

McMahon Associates has completed a review of the transportation section of the Second Supplemental Final Environmental Impact Report (SSFEIR) filed in accordance with the Massachusetts Environmental Policy Act (MEPA) for the Payne's Crossing Project. Based on the comments in this letter and given the overall size of the Project and the changes in use and character it will instill on the surrounding corridor, a more thorough understanding of several of the Project's impacts remains necessary.

Significant issues still remain with regard to the traffic impacts of this project, based on missing or incomplete information in the SSFEIR. We were unable to review two of the three mitigation alternatives presented in the SSFEIR because **analysis of any alternatives involving proposed roundabouts was not included in the SSFEIR**. The lack of this information impairs our ability to fully comment on the impacts of the proposed mitigation. Additionally, our prior comments and recommendations on improving the Build condition analysis were not incorporated in the Build condition analysis of the SSFEIR, but were instead provided in a **separate "sensitivity analysis" which essentially disregards our recommendations**. Further, **the sensitivity analysis presented in the SSFEIR incorrectly applies some of our assumptions**, placing the validity of the sensitivity analysis and its comparison to the Build condition analysis by the Proponent in question. Finally, in reviewing the signalized alternative for mitigation for which analysis was provided, we found that **queues may still impact access to the Route 24 ramps**. The extent of the impact of this queuing remains unclear, based on our concerns with the Build condition analysis and our inability to review the roundabout analysis for two of the three mitigation alternatives. We urgently and respectfully request that either **no decision or an inadequate finding on the SSFEIR be rendered by MEPA until the Proponent provides additional information** requested in this letter for review and comment.

Payne's Crossing

EEA # 01982

Pg. 16

If you should have any questions or require further information, please feel free to contact us.

Very truly yours,

A handwritten signature in black ink, appearing to read "Gary McNaughton". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Gary McNaughton, P.E., PTOE

Vice President and General Manager

A handwritten signature in black ink, appearing to read "Steven C. Findlen". The signature is cursive and somewhat compact, with the first letters being prominent.

Steven C. Findlen

Project Manager