SALEM STATE UNIVERSITY RESPONSE TO FAY, SPOFFORD & THORNDIKE, LLC'S FEB. 5, 2015 MEMORANDUM

Salem State University (SSU), in conjunction with Tetra Tech, Inc., its consultants on the parking garage project, present the following responses to comments and questions from Fay, Spofford & Thorndike, LLC's (FST) Peer Review of Tetra Tech's traffic study. The University will continue discussions with the City of Salem to address concerns raised in the memorandum.

Section 2.0 Peer Review – Salem State University North Campus Access Study

Overall – Page 2

"One of our key findings is that the Study did not include campus-wide summary of parking/traffic changes concurrent with the Garage impacts and was therefore it was difficult for us to determine the true impacts of the new Garage. A large amount of the information such as traffic volume figures were only included in the previously submitted Traffic Impact and Access Study for selecting the garage site."

The peer review was conducted of the *North Campus Access Study* (Tetra Tech, June 23, 2014), which was an abbreviated document prepared at the request of SSU to evaluate various options to improve access to/from North Campus and the proposed parking garage, as well as potentially reducing traffic at the Loring Avenue/Lafayette Street/West Street intersection. The impact of the proposed North Campus parking garage on the local street system was documented in the *Traffic Impact and Access Study* (Tetra Tech, April 22, 2014).

"For instance, the North Campus Access Study does not provide a clear description of the size of the proposed garage, instead only stating that the North Campus parking spaces would be increased from 565 spaces to 1,110 spaces. Based on the previously submitted Traffic Impact and Access Study, the proposed North Campus garage appears to be 800 spaces and will replace 255 surface spaces for a net increase of 545 parking spaces."

Parking on the North Campus will increase from 565 spaces to 1,110 spaces (an increase of 545 spaces)[*] as a result of the proposed garage. This information was documented in the April 2014 *Traffic Impact and Access Study*. The proposed garage would be

[*] *At the time the study was executed, the garage was a planned 800 space garage. The current garage design is for 725 spaces with 474 net new spaces.*

constructed on the existing southerly parking lot in North Campus. Parking in this area would increase from 255 spaces to 800 spaces (an increase of 545 spaces)*.

"We recommend that the Applicant provide a summary description of existing North Campus parking demands, accounting for both on- and off-street parking supplies used by the campus population. The actual net increase in parking associated with the proposed garage after accounting for all campus-wide losses in surface parking and assumed on-street parking diversions should be summarized. A prospective time line for when surface parking supply reductions will occur over the next six years and when programmed new academic buildings will come on line would be very helpful in reviewing the validity of the Study's traffic projections."

The University has conducted 3 parking studies between 2006 and 2014. The most recent study (Desman Associates, February 2014) indicates that by 2019, without the proposed North Campus garage, the total available parking on the SSU campus would be 1,597 spaces with a practical capacity of 1,437 spaces. The practical capacity accounts for operational efficiency of parking areas. The Desman study also forecasted a demand for approximately 2,080 on-campus parking spaces resulting in a deficit of 643 spaces (2,080 spaces less 1,437 spaces). The most recent parking analysis accounts for Viking Hall, the new residence hall that is currently under construction in Central Campus, a future science building on North Campus, and a shift of approximately 180 on-street SSU parkers onto the campus.

The April 2014 *Traffic Impact and Access Study* assumed a net increase of 545 spaces* on North Campus upon completion of the new garage, which is estimated to generate approximately 100 new trips exiting from College Drive onto Loring Avenue during the weekday afternoon peak hour. Of these 100 trips, it was estimated that 35 would be existing trips that would shift from the O'Keefe Center Lot and 65 existing trips would shift from lots on Central Campus. It is possible that some of these outbound trips would shift from on-street parking spaces rather than from the O'Keefe Center Lot or Central Campus. That said, in general the potential impacts to the local street network that were reported in the *Traffic Impact and Access Study* remain valid.

Existing Site Observation Issues – Pages 2-3

"The existing brick crosswalks at the "oval" portion of College Road and at the intersection with Loring Avenue are not delineated with white pavement markings. Therefore, these are not MUTCD compliant crosswalks. White pavement markings need to be added to delineate the crosswalks."

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* *At the time the study was executed, the garage was a planned 800 space garage. The current garage design is for 725 spaces with 474 net new spaces.*

College Drive ("College Road") will be reconstructed as part of the North Campus parking garage project. The crosswalks will be reconstructed in accordance with current standards for pedestrian accommodations.

"Yellow pavement marking are used on College Drive to separate the left and right turning traffic. Yellow pavement markings should only be used to separate direction of travel. These markings should be changed to white."

College Drive will be reconstructed as part of the North Campus parking garage project. All pavements markings, including lane lines will installed in accordance with current standards for traffic control.

Trip Generation – Pages 3-5

"An updated trip distribution figure was not included in the North Campus Access Study. A trip distribution figure with the proposed garage and a two-way College Road needs to be provided to clearly show the change in volumes due to the proposed project."

Traffic volume figures are provided in the April 2014 *Traffic Impact and Access Study* for the 2019 weekday peak hours and include traffic from the proposed North Campus parking garage (Figures 18 and 19). These figures show traffic levels without the proposed mitigation, which includes the redesign of College Drive to accommodate two-way traffic.

With the proposed two-way traffic circulation plan for College Drive, a right turn from Loring Avenue onto College Drive will be permitted. It is estimated that approximately 60 vehicles during the morning peak hour and 55 vehicles during the afternoon peak hour would make a right turn onto College Drive. These 55 to 60 vehicles would no longer pass by the Horace Mann School or travel through the Loring Avenue/Lafayette Avenue/West Street intersection.

"Trip Generation for the project was calculated based on the increase in parking spaces using the existing traffic generation rate. The number of parking spaces, in and of itself, is typically not a reliable indicator of traffic generation demands. However, increasing the parking supply can increase the parking demand, and hence, proportionally increase traffic demands. Therefore, the method for calculating increased traffic demands pertaining to the garage is reasonable."

We concur.

"Without any policy changes on on-street parking, we question why any on-street parkers will use the garage if on-street spaces are available."

The North Campus was selected for the new garage as it is the academic center of the Salem State University Campus, and the February 2014 parking study indicated that the parking deficit is highest on this campus. If the city were to reduce the supply of on-street parking available for public use on Loring Avenue or Lafayette Street, this would further encourage students/staff to park on-campus.

"Even if the campus population remains stable, if the proportion of student (and faculty/staff) commuters increase after the garage is available, thereby creating a higher parking supply throughout the campus, campus traffic impacts will increase, with most of the increases being absorbed by the North Campus, especially if the on-street parking supplies on Lafayette Street and Loring Avenue are retained."

We do not agree with the notion that more parking spaces create more traffic. Land uses generate vehicle trips, not parking facilities. The University is pursuing construction of a parking garage in order to off-set impacts on the existing parking supplies that are expected in the North and Central Campuses due to construction of Viking Hall and future academic facilities.

"Based on the information included in the earlier Traffic Impact and Access Study and a Sasaki SSU Master Plan presentation, the proposed North Garage is fundamentally needed to relieve a severe parking shortage that spills onto nearby on-street parking supplies, causing extra trips for students looking for parking spaces."

We concur.

"With an increased parking supply, traffic may not be students or faculty new to the campus, but rather could be the result of a mode shift from walking, biking, transit, carpooling, or simply due to the more plentiful North Campus parking supply projected to increase by 545 parking spaces."

It is unlikely that environmentally conscience students and staff who currently live close enough to walk, bike, use transit or carpool to commute to campus would shift to driving to campus as a result of the construction of a new garage.

"A year by year accounting for campus wide lost/gained spaces, whether on- or off-street, with academic building construction assumed is needed for the next six years (the Study horizon year)."

The February 2014 *Parking Study* (Desman Associates) provides a detailed analysis of the Salem State University parking requirements for the year 2019.

"The earlier Traffic Impact and Access/Garage Location Study assumed a reduction in traffic associated with the construction of a 355 student residence hall, which would eliminate 157 existing surface parking spaces. The earlier Traffic Impact and Access Study for alternate garage locations assumed that the construction of the residence hall would reduce traffic by 98 trips during the morning peak hour and 103 trips during the evening peak hour. This reduction is not presented as a redistribution of trips, but rather as a total reduction in traffic. We believe this reduction may be overestimated for the following reasons."

- *The "new" traffic associated with the residence hall appears to be low, especially during the weekday evening peak hour when college students are active. Unless student residents are prohibited from having a car on campus (which is not addressed in the Study), we would expect the new SSU North Campus trip generation to be higher than projected during the weekday evening peak hour.*

The analyses documented in the April 2014 *Traffic Impact and Access Study* assumed a reduction in total peak hour trips generated by the Campus as a result of shifting 355 commuter students into on-campus housing. The reduction was based on the difference between the eliminated trips estimated from commuter student trip rate documented in the study and new trips generated by on-campus students. The study assumed that 10 percent of on-campus students would make a trip to or from the campus during the peak commuter hours. Students living on-campus may not move their vehicles for days at a time, and when they do use them, would likely schedule their trips to avoid peak periods given the levels of congestion on local streets during these periods.

- *The study justifies the reduction in traffic is based on the assumption that 355 on-campus students will replace 355 commuter students. This only makes sense if the campus is actually controlling the amount of commuter students and reducing, not increasing the parking supply on the full campus. It would seem that if the campus wide peak parking supply is increasing, the amount of anticipated commuter students is increasing, not decreasing. It would seem a better choice to ultimately reduce the campus wide parking supply to compensate for new on-campus student residences or academic buildings, if the notion is to reduce the commuting student population, as stated in the draft Master Plan, from 28% on campus to 50% on campus. The addition of campus housing has pedestrian impacts that also require mitigation at the Raymond Road intersection with Loring Avenue or at any location where crossing demands will increase across Loring Avenue itself.*

The Salem State University Master Plan was prepared for the year 2040 and anticipates, by that year, 50 percent of full-time, undergraduate students will live on-campus as compared to 28 percent under present conditions. However, until 2040, a significant parking deficit will exist on the campus. The proposed parking garage, while not totally eliminating the parking deficit, would address a significant portion of the deficit until additional on-campus housing can be built.

Separate from the parking and traffic studies prepared for the proposed parking garage, but associated with the Viking Hall project in Central Campus, a new crosswalk was recently installed on Loring Avenue south of Raymond Road. The crosswalk installation was reviewed and permitted by the Massachusetts Department of Transportation (MassDOT), who has jurisdiction for that portion of Loring Avenue.

- *"Essentially, there would be a disconnect if the campus wide parking supply increases while student commuter population will decrease, even if the enrollment does not increase beyond the 1.5% six year growth the Study assumes. Although the City of Salem has input into the construction of new buildings, the City of Salem does not have the ability to regulate growth in the student commuting population, given the projected 545 increase in the North Campus off-street parking supply cited in the Study. If other words, if there is not an overall net decrease in the campus-wide parking supply exceeding the 545 space increase, campus wide traffic could increase with the construction of the new garage more than the assumed 1.5% growth in the campus population, thereby affecting the volumes reported in the Study"*

SSU has commissioned three parking studies in the past nine years *(Campus Parking Study & Analysis* (SP Consulting, September 6, 2006), *Parking and Traffic Analysis Memorandum* (Sasaki, June, 2013) and *Salem State University Parking Needs Assessment* (Desman, February 4, 2014). The SP Consulting study was primarily focused on managing parking, while the Sasaki and Desman studies both focused on campus parking requirements. The Sasaki and Desman studies both concluded that a parking garage was warranted to handle future building and student growth anticipated for the campus.

The Desman study forecasts a parking deficit of 643 spaces by 2019, inclusive of the reduction in commuter students and parking supply resulting from the new Central Campus residence hall; reduction in parking supply resulting from a new science building on North Campus; and the projected increase in student enrollment of 0.25 percent per year or 1.5 percent over the next five years. The proposed parking garage will reduce the deficit by 545 spaces, from -643 spaces to -98 spaces[*].

"Is SSU committed to 1) A relatively stable campus wide population; 2) reducing its commuting student population? If so, by how much and is there a target date?"

SSU's Master Vision Plan calls for the addition of housing for approximately 1,500 more students over the next 10 years, including the 353-bed Viking Hall scheduled to open in fall of 2015. This would lead to a concurrent reduction in commuting students of approximately 20%.

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"A summary table of campus wide actions should be presented in the Study, which would show year by year changes in parking supplies campus-wide? This is perhaps best to illustrate on a graphic or a table."

Salem State will work with our traffic consultants to produce this information.

"Will there be a future campus parking policy that requires parking permits for all commuting/overnight students and faculty/staff, regardless of whether they park off-street or on-street?"

At this time, Salem State requires permits for all students, commuter and residential, and all staff who park on campus. This practice will continue into the future for on-campus parking. We cannot require permits for on-street parking as it is public parking and cannot be restricted by the university.

"How will the garage be managed? Will it be 'free' for students/faculty/staff or will parking rates be set to encourage on-campus housing and encourage commuting students to carpool/use the T/bike/walk?"

The garage will be exclusively for student use. The students will pay an annual fee (or half year for transfer students) to park on campus including in the garage. The garage will be controlled by electronic gate and once a student purchases a parking permit their ID card will be programmed to allow access to the garage.

The fee schedule has not been finalized, however the latest draft proposal calls for structured fees depending upon classification - resident student or commuter student. Resident student fees would be much higher than commuter student fees in recognition of the fact that a resident student is paying for the privilege of leaving a vehicle on campus 24/7 and also in an effort to somewhat discourage resident students from bringing a car to campus unless absolutely necessary.

"Currently, enhancements to other modes of transportation, such as bicycling, walking, or transit are not addressed the Study. Will the campus provide concurrent on-campus facilities and be supportive of on-street actions (e.g., new bus stops, bike lanes or cycle tracks that could encourage other modes of transportation mitigate and minimize North Campus Garage traffic impacts?")

Salem State is working with the North Shore Transportation Management Association to fully assess options for maximizing student and staff access to alternative transportation modes. We are fully supportive of on-street actions that will improve alternative transportation options in our community.

Alternative Modes of Transportation – Page 5

"The Study did not discuss any proposed improvements for other modes of transportation, such as bicycling, walking, or transit. Encouraging other modes of transportation is a crucial element to minimize traffic impacts of the campus. Will any improvements be made to other modes of transportation (e.g., increased bike storage/shared bike system improvements to reduce pedestrian/vehicle conflicts on Loring Avenue at Raymond Road)? Does SSU desire to increase the on-street accommodations of bicycles on Loring Avenue that may require a loss of on-street parking controlled by the City but used by the campus population?"

Salem State is working with the North Shore Transportation Management Association to fully assess options for maximizing student and staff access to alternative transportation modes.

The university fully supports increasing on-street accommodations for bicycles on Loring Avenue and Lafayette Street. The new garage will also have bicycle racks, and the university's Sustainability Task Force is evaluating the inventory of bicycle racks throughout campus and will make recommendations for additional racks and bicycle access improvements.

Additionally, commuter students parking on North Campus will no longer have to walk through City streets from lots on other campuses to get to classes, likely reducing pedestrian/vehicle conflicts.

Lafayette Street/College Road Access – Pages 5-6

"The Study indicates the increase in traffic at the College Drive at Lafayette Street intersection due to the proposed garage as well as the proposed change in access will add 57 additional vehicles during the morning peak hour and 23 additional vehicles during the weekday evening peak hour. Since College Road is one-way AWAY from the Lafayette Street, this intersection will operate acceptably with minimal change from existing conditions. Traffic from all directions, except from Marblehead, should be making right turns in to enter the campus garage from this intersection."

Traffic entering College Drive from Lafayette Street southbound will decrease with the implementation of two-way College Drive. We concur that the intersection will operate acceptably.

Loring Avenue/College Road Access – Page 6

"As part of the proposed project, the College Road driveway at Loring Avenue will be changed from its existing one-way toward Loring Avenue operation to two-way operation. According to the Study, the increase in College Road traffic approaching Loring Avenue

will account for 23 additional vehicles during the morning peak hour and 100 additional vehicles during the weekday evening peak hour.

This will result in poor operations for the traffic exiting College Road onto Loring Avenue during both the morning and evening peak hours. During the morning peak hour, the delay will increase from 31 seconds (LOS D) without the garage to 129 seconds (LOS F) with the garage. During the evening peak hour, the delay will increase from 55 seconds (LOS F) without the garage to 338 seconds (LOS F) with the garage.

The delay exiting College Drive will be significant and there is a concern that excessive delay could result in frustrated drivers taking insufficient gaps, potentially creating safety issues for pedestrian/vehicle conflicts. SSU should consider additional measures to mitigate traffic operations during the critical PM peak hour and encourage carpooling, biking, or walking.

Recommendations to mitigate traffic operations at the intersection were presented in the April 2014 *Traffic Impact and Access Study* and included the following potential measures:

- Work with the City of Salem to implement parking restrictions along the east side of Loring Avenue, south of College Drive for approximately 150 feet, in order to improve sight lines for drivers exiting College Drive.
- Monitor traffic operations during the morning and afternoon peak hours after a parking garage on North Campus is operational to confirm the traffic forecasts presented in this study. Observations will include turning movement counts, vehicle delay measurements and queue observations.
- If the monitoring indicates that long delays occur on College Drive and vehicles are turning into unsafe gaps in traffic on Loring Avenue, the university may provide police officer control during those peak hours. This measure would require coordination with the City of Salem.
- After the garage is operational, conduct a full traffic signal warrants analysis. If a traffic signal is warranted, meet with the City of Salem to discuss the potential of installing a traffic signal at this location.

"Westbound Loring Avenue left turns into College Drive during the morning peak hour will affect the westbound Loring Avenue through traffic. The Study projected 152 Loring Avenue left turns during the morning peak hour and 83 left turns during the evening peak hour. We are concerned that queuing of westbound Loring Avenue traffic behind stopped traffic that does not exist today will occasionally block through traffic on Loring Avenue. The proponent should either prepare a traffic simulation showing that the Loring Avenue westbound left turns will not cause problems, or the Loring Avenue westbound left turns should be prohibited."

The westbound left turn movement onto College Drive will be prohibited. Only right turns from Loring Avenue eastbound onto College Drive will be permitted.

"To improve sight distance, on street parking should be removed on Loring Avenue west of College Road for a distance of approximately 150 feet. This was discussed in the April Traffic Impact and Access Study but was not reiterated in the June North Campus Access Study."

As noted by the reviewer, the April 2014 *Traffic Impact and Access Study* recommended that on-street parking be removed on Loring Avenue west of College Drive for a distance of 150 feet. SSU will work with the City to implement safety improvements at the intersection.

Pedestrian Crossings – Pages 6-7

"Therefore, if left turns are not allowed from Loring Avenue into College Road, the pedestrian/vehicle conflict volumes at the Peabody crossing will be higher than existing conditions. Please consider additional measures to be implemented to improve this pedestrian crossing."

The crosswalk located on-campus at Peabody Hall will be designed in accordance with current design standards including appropriate signage, pavement markings and handicap accommodations.

Proposed Design (two-way College Drive) – Page 7

"For two way travel, the proposed width of 20 feet is inadequate for College Road. A minimum width of 24 feet is required along College Road to accommodate emergency fire access and winter plowing requirements."

The final design for this accommodates 24 feet.

"The drawing does not show a sidewalk along College Road. A sidewalk should be provided for the entire length of College Road."

There is a sidewalk on College Drive that will be relocated in the widening of the road.

"We agree with the use of the W11-2 (Pedestrian) and W16-7 (Arrow) signs proposed at the two midblock College Road crosswalks. W11-2 signs are not needed at the Stop controlled intersection. We recommend the signs at the two-way section should be double sided. It's unclear from the graphic if these are double sided or not."

All signage will be designed in accordance with current design standards.

"A marked crosswalk should be provided across College Drive at Loring Avenue."

The University will work with the City on any issues regarding public crosswalks.

"Stop lines are shown across all three legs of the internal College Road/Connector Road intersection. If this will be an all-way stop, stop signs and "all-way" plaques should be installed on all approaches."

All traffic markings and signage will be designed in accordance with current design standards.

"The extended brick sidewalk should have 12 inch wide white lines or continental style lines to distinguish the limits of the crosswalk."

All crosswalks related to the project will be designed in accordance with current design standards including appropriate signage, pavement markings and handicap accommodations.

"A stop line is not needed in front of the easternmost crosswalk."

All traffic markings and signage will be designed in accordance with current design standards.

"To improve sight distance, on-street parking on the north side of Loring Avenue should be removed west of College Road for a distance of 150 feet."

The University will work with the City on traffic and sight line improvements.