



MEMORANDUM

To: Burlington School District – Finance and Facilities Committee

From: Joe Weith, Senior Project Manager

Date: October 12, 2021

Re: Update on Site Feasibility Assessments – Institute Road and Gateway Block Sites

This memorandum provides a summary of key findings related to the preliminary development feasibility assessments being conducted for the Institute Road and Gateway Block sites. Work done to date involves preparation of conceptual site plans and massing diagrams, and preliminary site engineering assessments to identify potential development issues with each of the sites.

Attached are conceptual site plans and massing diagrams showing how a new high school and technical center could potentially fit on each of the three (3) sites. It is important to note that these massing diagrams are not floor plans or building sections, they are intended to show roughly how much square footage and the number of stories that could potentially fit on the site.

INSTITUTE ROAD NORTH

Conceptual Site Plan and Massing Diagram

- Total building square footage: 300,000 \pm (includes a 30% increase for BTC). All programs would be accommodated on site.
- Parking spaces (surface): 343+. This includes existing parking lot on south side of Institute Road and construction of a new lot in area of demolished/abated buildings. Meets minimum parking requirement of 325 spaces.
- Building Height: 45' \pm 2.5 stories average.

- Lot coverage: 35% ±
- Expansion potential: Limited on the north side of Institute Road, only about 8,000 SF ± unless expansion takes place in the area of the demolished/abated buildings. Additional expansion (about 38,000 SF ±) could take place on the south side in the area of the existing parking lot (this would eliminate parking spaces in this area).
- Parking expansion potential: 10% increase possible in area of the demolished/abated buildings.
- Large open site allows for good access to sunlight and window ventilation

Stormwater

- Primary stormwater management system likely to consist of newly constructed gravel wetlands. Appears to be sufficient area on the site to accommodate the gravel wetlands.
- The overall stormwater plan will address other upgrades that are required by recent changes to the State's stormwater rules.
- Stormwater outfall to the west of the track will need to be repaired and the channel stabilized. This will likely be required even if a different site is chosen for the new high school and technical center.

Geotechnical

- Soft clay soils may be present east of the existing buildings, but not likely to be significant. If present, ground improvement or deep foundations may be required which adds cost.
- Possible high groundwater conditions may be present. If so, foundations drains would be required, but not insurmountable.

Utilities

- No significant concerns with water or sewer service.
- Water lines will likely need to be replaced or retrofitted with an in-place liner.
- Some blasting of ledge may be necessary for water and/or sewer line installation.

Environmental Contamination (area east of the existing buildings)

- Urban soils confirmed. Excavation and removal will require disposal at certified landfill.
- Prior on-site storage of hazardous materials and on-site vapor conditions unlikely.
- No PCBs, asbestos or lead in building materials expected since no history of buildings in this area.

Traffic/Transportation

- No significant traffic concerns since little change in traffic volumes between existing and proposed conditions expected.
- Appears to be enough distance from the North Avenue intersection to allow for efficient and safe student drop off/vehicle queuing.

Other

- Conceptual site plan shows entire building being constructed in the area east of the existing buildings and contamination. This potentially allows for the new school to be constructed while demo and remediation of existing buildings takes place, allowing for a quicker construction timeline and building occupancy.
- Large amount of open area on site and south side of Institute Road simplifies staging, material sequencing and delivery, which relates to project timeline.
- Simpler, uncomplicated construction parameters generally result in less construction cost and reduced schedules.

INSTITUTE ROAD SOUTH

Conceptual Site Plan and Massing Diagram

- Total building square footage: 300,000 \pm (includes a 30% increase for BTC). All programs would be accommodated on site.
- Parking spaces (surface): 322+. Includes existing parking lot on south side of Institute Road, existing parking lot on north side and construction of a 31-space parking lot in area of demolished/abated buildings.
- Building Height: 45' \pm 2.5 stories average
- Lot coverage: 35% - 40% \pm
- Expansion potential: About 28,000 SF \pm primarily into the existing parking lot (this would eliminate about 90 \pm parking spaces).
- Parking expansion potential: 24% increase possible in area of the demolished/abated buildings on the north side of Institute Road.
- Large open site allows for good access to sunlight and window ventilation

Stormwater

- Primary stormwater system is likely to include installation of underground infiltration chambers and a large above ground infiltration system on the south side of the site.
- Infiltration chambers may require an overflow culvert across the track to the existing outfall which will cause significant disturbance to the track and field area.

- The main parking area north of Institute Road will likely require a separate gravel wetland system.
- The overall stormwater plan will address other upgrades that are required by recent changes to the State's stormwater rules.
- Stormwater outfall to the west of the track will need to be repaired and the channel stabilized. This will likely be required even if a different site is chosen for the new high school and technical center.

Geotechnical

- Not much soil/geotechnical information available for this side of Institute Road. Soil borings and analysis will need to be conducted to determine suitability of the soils for construction.
- There is a belief that there is extensive fill in this area that is likely not suitable for foundation support. This will need to be analyzed.

Utilities

- No significant concerns with existing water or sewer service
- Water lines will likely need to be replaced or retrofitted with an in-place liner.
- Utilization of bio-mass plant (wood chip) is more complex due to the longer distance from current plant location. Length of service equates to significant loss of efficiency (heat) and higher expense of insulated network run and materials (under road/tunnel).

Environmental Contamination

- Urban soils likely. Excavation and removal will require disposal at certified landfill.
- Prior on-site storage of hazardous materials and on-site vapor conditions unlikely.
- PCBs and lead in building materials and/or indoor air is unlikely based on the young age of the buildings.
- Asbestos in building materials is unlikely but there is potential based on age of buildings.

Traffic/Transportation

- No significant traffic concerns since little change in traffic volumes between existing and proposed conditions expected.
- Appears to be enough distance from the North Avenue intersection to allow for efficient and safe student drop off/vehicle queuing.
- Conceptual site plan shows the construction of a new bus turn out/drop off area on North Avenue and a new driveway off North Avenue for emergency vehicles and

deliveries. These additional curb cuts will require further traffic analysis and will add cost.

Other

- Large amount of open area on site and north side of Institute Road simplifies staging, material sequencing and delivery, which relates to project timeline.
- Simpler, uncomplicated construction parameters generally result in less construction cost and reduced schedules.

GATEWAY BLOCK

Conceptual Site Plan and Massing Diagram – Scheme # 1 (Retain/Renovate Memorial Auditorium and Fire Station)

- Total building square footage: 251,000 ± (234,000 SF devoted to school and 17,000 devoted to private ground floor commercial space). Assumes shared use of Fletcher Free Library.
- New building does not accommodate all programs for BTC including aviation, automotive repair, and some other building trades. Unknown as to whether other BTC program space can be increased in size compared to former space on Institute Road.
- Parking spaces (structured parking under building): 130 ±. Does not meet BSD's desired minimum of 325 spaces.
- Building Height: 85' ± 7 stories fronting S. Winooski, 5 stories front S. Union. Complies with zoning.
- Lot coverage: 87% ± complies with zoning.
- Expansion potential: 12,200 SF ± only possible by adding vertically to existing building footprint. Would require overbuilding foundation and lower structure to accommodate more stories which adds cost.
- Parking expansion potential: None possible.

Conceptual Site Plan and Massing Diagram – Scheme # 2 (Demolish Memorial Auditorium and Retain/Renovate Fire Station)

- Total building square footage: 371,000 SF ± (354,000 SF devoted to school and 17,000 devoted to private ground floor commercial space). High school library included in the new building.
- New building does not accommodate all programs for BTC including aviation, automotive repair, and some other building trades. Assumes the size of other BTC program space can be increased in size by 30% compared to former space on Institute Road.

- Parking spaces (structured parking under building): 225 ±. Does not meet BSD's desired minimum of 325 spaces.
- Building Height: 85' ± 6 stories fronting S. Winooski, 4 stories fronting S. Union. Complies with zoning.
- Lot coverage: 89% ± complies with zoning.
- Expansion potential: 12,000 SF ± only possible by adding vertically to existing building footprint. Would require overbuilding foundation and lower structure to accommodate more stories which adds cost.
- Parking expansion potential: None possible.

Stormwater

- Primary stormwater system likely to include relocation of the historic combined ravine sewer and installation of an underground detention chamber system.
- Relocation of the combined ravine sewer is an extensive, costly, and time-consuming project (see discussion below under utilities and geotechnical).
- Appears to be sufficient area on site to accommodate an underground detention chamber system.
- Even if Gateway Block is chosen for the new school, stormwater improvements will still need to be made at the Institute Road property (e.g., gravel wetlands, repair outfall) due to recent stormwater rules pertaining to existing sites with over 3 acres of impervious area.

Geotechnical

- Deep fills are expected in the area of the ravine sewer which are unsuitable for foundation support. Will likely require removal and replacement with suitable material which is costly.
- Expected clay soils will require deep foundations which adds significant cost.
- Higher number of stories and underbuilding parking will require higher structural loads on the foundations which adds cost.
- Geotechnical engineer considers the Gateway Block site to be far more challenging than the Institute Road site from a geotechnical perspective.

Utilities

- City will likely require the relocation of the historic combined sewer/stormwater line that runs through the site (known as the "ravine sewer"). This will require significant time and cost to analyze, design and construct the relocated sewer.
- A complete study of the existing sewer/stormwater infrastructure, existing and proposed flows, flow monitoring and overall condition evaluation will be required as part of future design which adds significant cost and time to the project.

- Adjacent water mains appear to have sufficient flow and capacity to serve proposed uses.

Environmental Contamination

- Urban soils likely. Excavation and removal will require disposal at certified landfill.
- Prior on-site storage of hazardous materials and on-site vapor conditions likely.
- PCBs, asbestos, and lead in building materials and/or indoor air expected based on age of buildings. Since sampling and extensive examination has not yet been conducted, the level of contamination is not yet known, but will likely cost less to remediate than Institute Road since it involves fewer buildings and less square footage.

Traffic/Transportation

- Traffic, transit, pedestrian, and bike planning expected to be more complex in this dense and more congested downtown area, but not insurmountable.
- Student drop off/pick up planned to be on site with driveway access from Main Street and College Street, and possibly S. Winooski. Capacity of Main Street and College Street to accommodate increased traffic will need to be evaluated.

Other

- Historic preservation – analyzing potential impacts to historic structures and obtaining required approvals will take time and add cost. Unknown at this time if approvals can be obtained to demolish Memorial Auditorium, which adds uncertainty and risk.
- Urban construction challenges exist, including limited staging/marshalling area. Shoring protection to existing adjacent structures (library, church, fire station, etc.) may be required which adds cost and time.
- Multiple stakeholders in project planning (City and private landowner) will impact schedule, decision-making and cost.
- If Fire Station is included in project, the time required to find and secure a new location and build a new station will be extensive and likely require phasing that portion of the project.
- High rise, multi-use buildings trigger additional code requirements which increases design complexity and construction cost.