

65 Glenn Street Lawrence, MA 01843 | 169 Ocean Blvd. Unit 101, PO Box 249 Hampton, NH 03842 T:978.794.1792 T:603.601.8154 TheEngineeringCorp.com

TO: Susan Bottan, SFO Town of Wayland School Department 41 Cochituate Road Wayland, MA 01778
FROM: Eric K. Gerade, PE, LEED AP

DATE: January 6, 2017

PROJECT NO.: T0558.17

RE: School Bus Parking Site Evaluation/Preliminary Construction Cost Estimate

TEC, Inc. (TEC) has prepared two additional conceptual layout plans and provided preliminary cost estimates, based on feedback from the Town of Wayland School Department. The previously identified Landfill Site has been determined to be non-advantageous for the relocation of the existing bus parking facility and no further review has been performed.

INITIAL SITE DUE DILIGENCE

TEC, with additional input and direction from the Town have identified the advantageous parcels as:

- 357 Commonwealth Road (Parcel ID: 52-158) (Open parcel)
- 86 Claypit Hill Road (Parcel ID: 19-072A) (Claypit Hill Elementary School)
- 0 Pemberton Road (Parcel ID: 51C-036E) (Near Lakeview Cemetery and Town Beach)
- 412 Commonwealth Road (Parcel ID: 49-064B) (Loker/Conservation Site)
- 201 Main Street (Parcel ID:47D-058B) (Wayland Middle School)

PRELIMINARY SITE ASSESSMENT

Conceptual layouts were prepared for the two additional Town owned properties to show the proposed bus parking concepts at each site. The conceptual layouts include proposed bus parking stalls with dimensions of twelve (12') foot by forty (40') foot, automobile parking stalls at nine (9') foot by eighteen and a half (181/2') foot and a standard size trailer. A summary of the new concepts are identified below.

412 Commonwealth Road (Parcel ID: 49-064B) – Loker Site

This 8.4-acre parcel is adjacent to Commonwealth Road and Rice Road. The property is owned by the Town of Wayland Conservation Department and primarily utilized as a trail network. The property is accessed by an existing driveway from Commonwealth Road and a small parking area for the trails located on the easterly portion of the property. This property is the former Dow Chemical Site with a history of contamination. The property contains wetlands to the southerly and northerly property limits, with an area towards the westerly side of the property that can be utilized for the proposed parking facility. The existing driveway leads to an open field area adjacent to the westerly property line that provides an opportunity for angled bus parking stalls with adjacent automobile parking stalls. This conceptual plan will require minor land/tree clearing and grading activities to construct the parking Ms. Susan Bottan, SFO Wayland Bus Parking Analysis January 6, 2017 Page 2 of 3

> facility; however, it will utilize the existing steep paved driveway. Electricity is available from either Rice Road or an existing utility pole connecting to Commonwealth Road. Due to the various resource areas present, the potential for hazardous materials and the property being owned by the Conservation Department, proposed construction at this site will require review and approval from the Town of Wayland Conservation Commission and further evaluation by a Licensed Site Professional. Refer to Figure 4 for the proposed Conceptual Plan for this property.

201 Main Street (Parcel ID: 47D-058B) – Wayland Middle School

This 2.0-acre parcel is part of the Wayland Middle School complex. The westerly half of this property is located within the Aquifer Protection District, with an area to the northeast of the existing Middle School building that is outside of the Aquifer Protection District, which was identified for the proposed parking facility. Moderate land/tree clearing will be required for construction of the parking facility which also requires a longer access driveway to access the area for development. It appears that the project limits will be outside of Conservation Commission jurisdictional areas. There are utility poles and overhead wires along Joyce Road and electric infrastructure within the Wayland Middle School complex for access to electrical service. A gated connection to Joyce Road could also be provided, however, would require an access driveway through a residential area. Refer to Figure 5 for the proposed Conceptual Plan for this property.

ALTERNATE LAYOUTS

TEC also evaluated alternate layouts at the Claypit Hill Elementary School property, the Loker Site property and the Wayland Middle School Property, to identify potential compact options to provide tandem bus parking stalls that allows for a reduced size parking facility. The bus parking stalls remain the same proposed size of twelve (12') foot by forty (40') foot; however, these layouts do not have full circulation of the parking facility and will require further coordination with the bus facility operator. Compact alternatives are shown on Figures 2, 4 and 5.

PRELIMINARY CONSTRUCTION COST ESTIMATE

TEC prepared preliminary construction cost estimates for the conceptual layouts. Various factors impacted the construction cost of each of the sites, including, topography, land clearing and anticipated earthwork. Each of the sites will require electric service as well as lighting which were incorporated into the estimate. Permitting, private utility, and trailer or structure fees were not included in this cost estimate. The preliminary estimate also includes anticipated costs associated with providing a gravel or pavement surface. Refer to Table 1 for a summary of the preliminary construction cost estimate for the sites.



Ms. Susan Bottan, SFO Wayland Bus Parking Analysis January 6, 2017 Page 3 of 3

Table 1 – Preliminary Construction Cost Estimate Summary

Location	Gravel Option	Pavement Option
357 Commonwealth Road	\$270,000.00	\$440,000.00
Claypit Hill Middle School, 86 Claypit Hill Road	\$140,000.00	\$230,000.00
Town Beach/Cemetery, 0 Pemberton Road	\$200,000.00	\$340,000.00
Loker Site, 412 Commonwealth Road	\$210,000.00	\$350,000.00
Wayland Middle School, 201 Main Street	\$230,000.00	\$410,000.00

Refer to the attached preliminary construction cost estimates for each of the Concepts.

TEC looks forward to discussing these conceptual layouts and construction cost estimates further with the Town of Wayland School Department.

List of Figures:

- Figure 1 Concept 1 357 Commonwealth Road (Parcel ID: 52-158)
- Figure 2 Concept 2 86 Claypit Hill Road (Parcel ID: 19-072A) Claypit Hill Elementary School
- Figure 3 Concept 3 0 Pemberton Road (Parcel ID: 51C-036E) Lakeview Cemetery/Town Beach
- Figure 4 Concept 4 Loker Site (Parcel ID: 49-064B) 412 Commonwealth Road
- Figure 5 Concept 5 201 Main Street (Parcel ID:47D-058A) Wayland Middle School



					TEC PROJ. #: T0558.17 DESIGN STAGE: Preliminary CHECKED BY: EKG	
IONWEALTH ROAD CONCEPT EST	IMATE:					
ITEMS	QUANTITY	<u>UNIT</u>	UNIT PRICE	<u>COST</u>	COST* (Gravel Option)	COST** (Pavement Optic
<u>EARTHWORK</u>				<u>\$117,791.74</u>		
Clearing/Grubbing	2.1	Α	\$15,000.00	\$30,991.74		
Earth Moving	16,700	CY	\$4.00	\$66,800.00		
Fine Grading/Compacting	4,500	SY	\$4.00	\$18,000.00		
Erosion Control	500	LF	\$4.00	\$2,000.00		
UTILITIES				<u>\$34,125.00</u>		
Parking Lot Lighting	2	EA	\$10,000.00	\$20,000.00		
Electric for Trailer	1	LS	\$4,125.00	\$4,125.00		
Stormwater Basin	1	EA	\$10,000.00	\$10,000.00		
LANDSCAPING & SIGNAGE				<u>\$12,000.00</u>		
Landscaping	1	LS	\$10,000.00	\$10,000.00		
Signage	1	LS	\$2,000	\$2,000.00		
GRAVEL OPTION *					<u>\$42,500.00</u>	
Gravel	250	CY	\$30.00		\$7,500.00	
Gravel Base	1,000	CY	\$35.00		\$35,000.00	
PAVEMENT OPTION**						<u>\$177,475.0</u>
HMA Pavement	750	TONS	\$125.00			\$93,750.00
Gravel Base	1,750	CY	\$35.00			\$61,250.00
Bituminous Berm	1,500	LF	\$6.00			\$9,000.00
Pavement Marking	1,500	FT	\$0.65			\$975.00
Drainage Infrastructure	5	EA	\$2,500.00			\$12,500.00
				SUBTOTAL	\$207,000.00	\$342,000.0
			39	% Mobilization	\$7,000.00	\$11,000.00
			25.0	% Contingency	\$52,000.00	\$86,000.00

TOTAL: \$270,000.00 \$440,000.00

Notes:

DATE: 1/6/2017

- 1. Permitting and private utility fees not included
- 2. Trailer relocation costs not included

CRIPTION: Wayland Bus Parking Concepts Estimates OCATION: 86 Claypit Hill Road, Wayland, MA ITIMATOR: MJS				TEC PROJ. #: T0558.17 DESIGN STAGE: Preliminary CHECKED BY: EKG		
PIT HILL MIDDLE SCHOOL CONCEP	T ESTIMATE:					
ITEMS	QUANTITY	<u>UNIT</u>	UNIT PRICE	<u>COST</u>	COST* (Gravel Option)	COST** (Pavement Optio
EARTHWORK				<u>\$32,985.40</u>		
Clearing/Grubbing	0.9	А	\$15,000.00	\$13,085.40		
Earth Moving	1,300	CY	\$4.00	\$5,200.00		
Fine Grading/Compacting	3,100	SY	\$4.00	\$12,400.00		
Erosion Control	575	LF	\$4.00	\$2,300.00		
UTILITIES				<u>\$34,750.00</u>		
Parking Lot Lighting	2	EA	\$10,000.00	\$20,000.00		
Electric for Trailer	1	LS	\$4,750.00	\$4,750.00		
Stormwater Basin	1	EA	\$10,000.00	\$10,000.00		
LANDSCAPING & SIGNAGE				<u>\$5,500.00</u>		
Landscaping	1	LS	\$5,000.00	\$5,000.00		
Signage	1	LS	\$500	\$500.00		
GRAVEL OPTION *					<u>\$29,750.00</u>	
Gravel	175	CY	\$30.00		\$5,250.00	
Gravel Base	700	CY	\$35.00		\$24,500.00	
PAVEMENT OPTION**						<u>\$101,730.</u>
HMA Pavement	525	TONS	\$125.00			\$65,625.0
Gravel Base	700	CY	\$35.00			\$24,500.0
Bituminous Berm	500	LF	\$6.00			\$3,000.00
Pavement Marking	1,700	FT	\$0.65			\$1,105.00
Drainage Infrastructure	3	EA	\$2,500.00			\$7,500.00
				SUBTOTAL	\$103,000.00	\$175,000.
			3%	% Mobilization	\$4,000.00	\$6,000.00

\$26,000.00

25 % Contingency

TOTAL: \$140,000.00 \$230,000.00

\$44,000.00

Notes:

DATE: 1/6/2017

- 1. Permitting and private utility fees not included
- 2. Trailer relocation costs not included

DATE: 1/6/2017

DESCRIPTION: Wayland Bus Parking Concepts Estimates **LOCATION:** 0 Pemberton Road, Wayland, MA

ESTIMATOR: MJS

TEC PROJ. #: T0558.17 DESIGN STAGE: Preliminary CHECKED BY: EKG

PEMBERTON ROAD CONCEPT ESTIMATE:

ITEMS	QUANTITY	<u>UNIT</u>	UNIT PRICE	<u>COST</u>	COST* (Gravel Option)	COST** (Pavement Option)
EARTHWORK				<u>\$64,572.45</u>		(i dramene option)
Clearing/Grubbing	1.3	А	\$15,000.00	\$19,972.45		
Earth Moving	6,500	CY	\$4.00	\$26,000.00		
Fine Grading/Compacting	4,300	SY	\$4.00	\$17,200.00		
Erosion Control	350	LF	\$4.00	\$1,400.00		
UTILITIES				<u>\$35,250.00</u>		
Parking Lot Lighting	2	EA	\$10,000.00	\$20,000.00		
Electric for Trailer	1	LS	\$5,250.00	\$5,250.00		
Stormwater Basin	1	EA	\$10,000.00	\$10,000.00		
LANDSCAPING & SIGNAGE				<u>\$12,000.00</u>		
Landscaping	1	LS	\$10,000.00	\$10,000.00		
Signage	1	LS	\$2,000	\$2,000.00		
GRAVEL OPTION *					<u>\$40,750.00</u>	
Gravel	250	CY	\$30.00		\$7,500.00	
Gravel Base	950	CY	\$35.00		\$33,250.00	
PAVEMENT OPTION**						<u>\$148,255.00</u>
HMA Pavement	725	TONS	\$125.00			\$90,625.00
Gravel Base	950	CY	\$35.00			\$33,250.00
Bituminous Berm	1,850	LF	\$6.00			\$11,100.00
Pavement Marking	1,200	FT	\$0.65			\$780.00
Drainage Infrastructure	5	EA	\$2,500.00			\$12,500.00
				SUBTOTAL	\$153,000.00	\$261,000.00
			3%	6 Mobilization	\$5,000.00	\$8,000.00
			25 %	6 Contingency	\$39,000.00	\$66,000.00

TOTAL: \$200,000.00 \$340,000.00

Notes:

- 1. Permitting and private utility fees not included
- 2. Trailer relocation costs not included

DATE: 1/6/2017

DESCRIPTION: Wayland Bus Parking Concepts Estimates **LOCATION:** 412 Commonwealth Road, Wayland, MA **ESTIMATOR:** MJS TEC PROJ. #: T0558.17 DESIGN STAGE: Preliminary CHECKED BY: EKG

LOKER SITE CONCEPT ESTIMATE:

ITEMS	QUANTITY	<u>UNIT</u>	UNIT PRICE	<u>COST</u>	COST* (Gravel Option)	COST** (Pavement Option)
<u>EARTHWORK</u>				<u>\$63,174.10</u>	(Graver Option)	(Pavement Option)
Clearing/Grubbing	0.9	А	\$15,000.00	\$13,774.10		
Earth Moving	7,000	CY	\$4.00	\$28,000.00		
Fine Grading/Compacting	4,600	SY	\$4.00	\$18,400.00		
Erosion Control	750	LF	\$4.00	\$3,000.00		
UTILITIES				\$34,625.00		
Parking Lot Lighting	2	EA	\$10,000.00	\$20,000.00		
Electric for Trailer	1	LS	\$4,625.00	\$4,625.00		
Stormwater Basin	1	EA	\$10,000.00	\$10,000.00		
LANDSCAPING & SIGNAGE				<u>\$12,000.00</u>		
Landscaping	1	LS	\$10,000.00	\$10,000.00		
Signage	1	LS	\$2,000	\$2,000.00		
GRAVEL OPTION*					<u>\$46,300.00</u>	
Gravel	260	CY	\$30.00		\$7,800.00	
Gravel Base	1,100	CY	\$35.00		\$38,500.00	
PAVEMENT OPTION**						<u>\$159,310.00</u>
HMA Pavement	780	TONS	\$125.00			\$97,500.00
Gravel Base	1,100	CY	\$35.00			\$38,500.00
Bituminous Berm	1,650	LF	\$6.00			\$9,900.00
Pavement Marking	1,400	FT	\$0.65			\$910.00
Drainage Infrastructure	5	EA	\$2,500.00			\$12,500.00
				SUBTOTAL	\$157,000.00	\$270,000.00
			3%	6 Mobilization	\$5,000.00	\$9,000.00
			25 %	Contingency	\$40,000.00	\$68,000.00

TOTAL: \$210,000.00 \$350,000.00

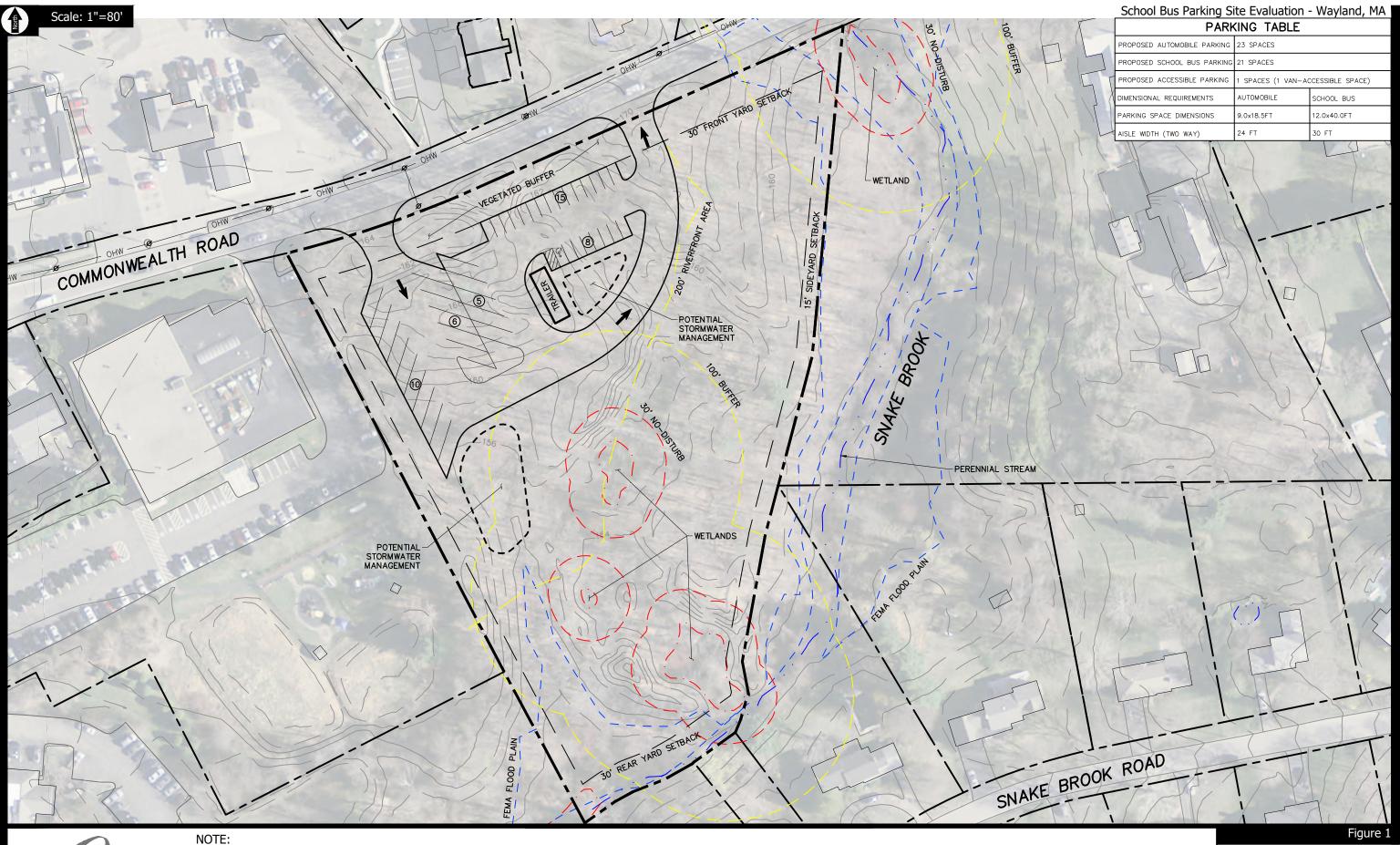
Notes:

- 1. Permitting and private utility fees not included
- 2. Trailer relocation costs not included

DATE: 1/6/2017 SCRIPTION: Wayland Bus Parking Concepts Estimates LOCATION: Wayland Middle School, 201 Main Street, Wayland, MA ESTIMATOR: MJS						TEC PROJ. #: T0558.17 DESIGN STAGE: Preliminary CHECKED BY: EKG	
YLAND MIDDLE SCHOOL CONCEPT	ESTIMATE:						
ITEMS	QUANTITY	<u>UNIT</u>	UNIT PRICE	<u>COST</u>	COST* (Gravel Option)	COST** (Pavement Opt	
<u>EARTHWORK</u>				<u>\$76,471.63</u>			
Clearing/Grubbing	1.5	А	\$15,000.00	\$23,071.63			
Earth Moving	7,500	CY	\$4.00	\$30,000.00			
Fine Grading/Compacting	5,500	SY	\$4.00	\$22,000.00			
Erosion Control	350	LF	\$4.00	\$1,400.00			
<u>UTILITIES</u>				<u>\$36,000.00</u>			
Parking Lot Lighting	2	EA	\$10,000.00	\$20,000.00			
Electric for Trailer	1	LS	\$6,000.00	\$6,000.00			
Stormwater Basin	1	EA	\$10,000.00	\$10,000.00			
LANDSCAPING & SIGNAGE				<u>\$12,000.00</u>			
Landscaping	1	LS	\$10,000.00	\$10,000.00			
Signage	1	LS	\$2,000	\$2,000.00			
GRAVEL OPTION*					<u>\$53,200.00</u>		
Gravel	315	CY	\$30.00		\$9,450.00		
Gravel Base	1,250	CY	\$35.00		\$43,750.00		
PAVEMENT OPTION**						<u>\$188,145.</u>	
HMA Pavement	950	TONS	\$125.00			\$118,750.	
Gravel Base	1,250	CY	\$35.00			\$43,750.0	
Bituminous Berm	2,050	LF	\$6.00			\$12,300.0	
Pavement Marking	1,300	FT	\$0.65			\$845.00	
Drainage Infrastructure	5	EA	\$2,500.00			\$12,500.0	
				SUBTOTAL	\$178,000.00	\$313,000	
			3%	% Mobilization	\$6,000.00	\$10,000.0	
				6 Contingency	1.7	\$78,250.0	
				TOTAL:	\$230,000.00	\$410,000.	

Notes:

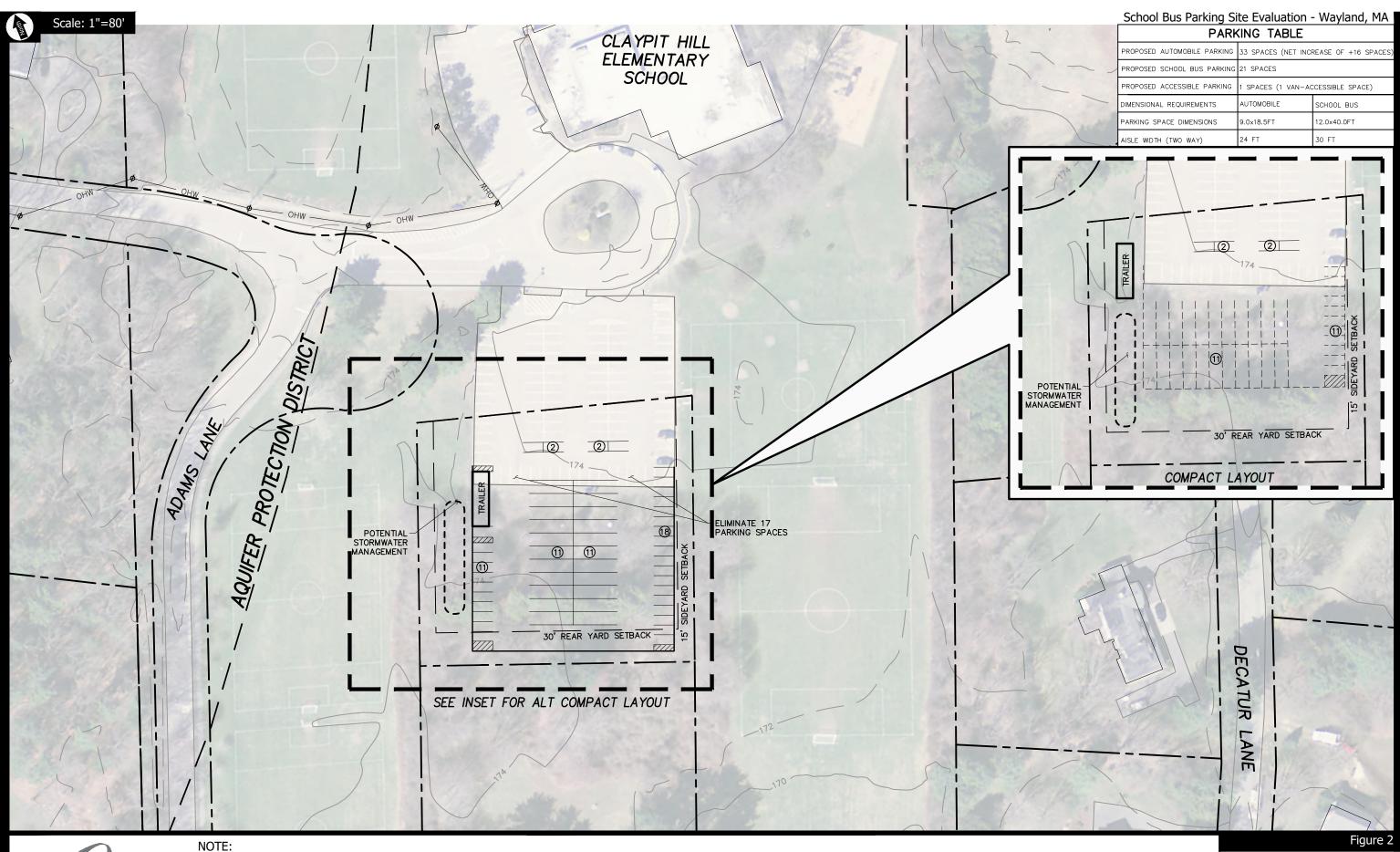
- 1. Permitting and private utility fees not included
- 2. Trailer relocation costs not included





THIS CONCEPTUAL LAYOUT PROVIDES A GENERAL CONCEPT INCORPORATING THE REQUESTED PARAMETERS FOR THE BUS PARKING FACILITY. VARIOUS CONFIGURATIONS OF BUS ROUTING AND PARKING CAN BE INCORPORATED. FINAL CONFIGURATIONS CAN BE COORDINATED WITH THE TOWN AND FACILITIES MANAGER DURING FINAL DESIGN.

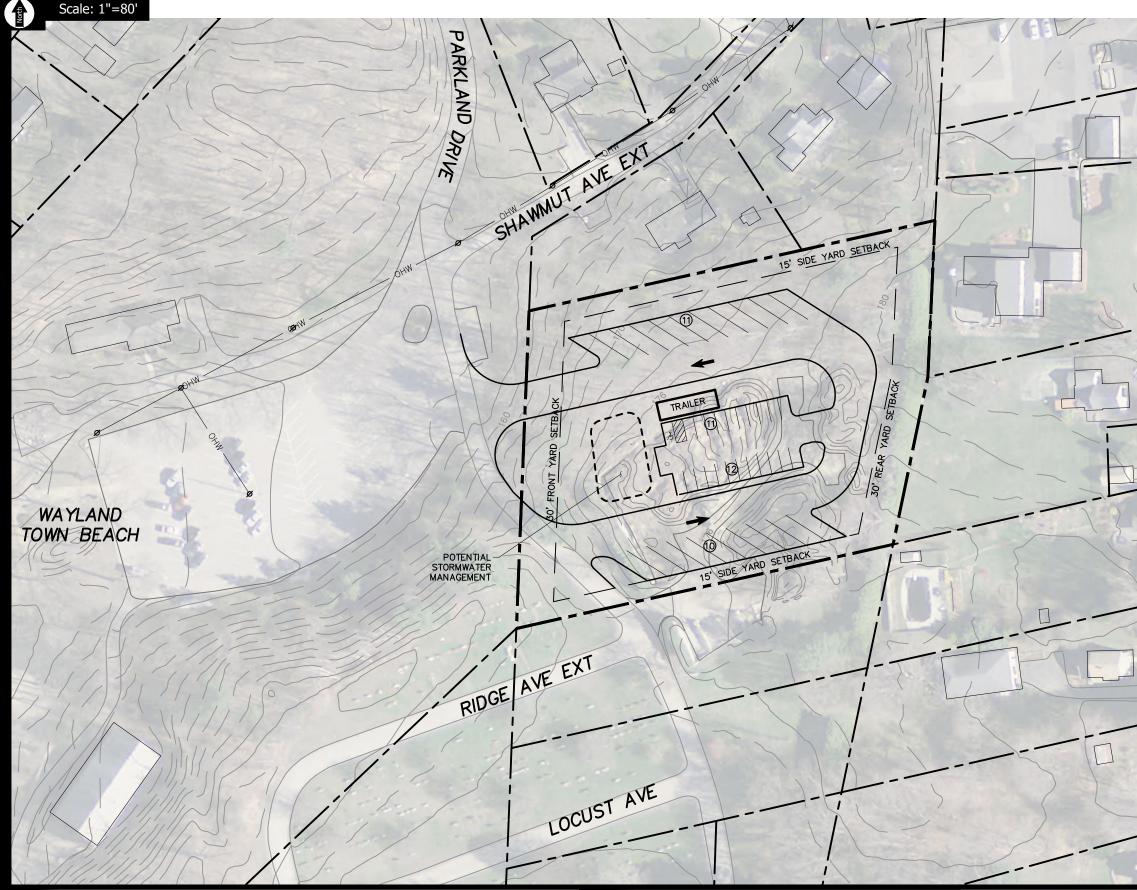
Concept 1 - Parcel ID: 52-158 357 Commonwealth Road, Wayland, MA January 6, 2017





THIS CONCEPTUAL LAYOUT PROVIDES A GENERAL CONCEPT INCORPORATING THE REQUESTED PARAMETERS FOR THE BUS PARKING FACILITY. VARIOUS CONFIGURATIONS OF BUS ROUTING AND PARKING CAN BE INCORPORATED. FINAL CONFIGURATIONS CAN BE COORDINATED WITH THE TOWN AND FACILITIES MANAGER DURING FINAL DESIGN.

Concept 2 - Parcel ID: 19-072A 86 Claypit Hill Road, Wayland, MA January 6, 2017





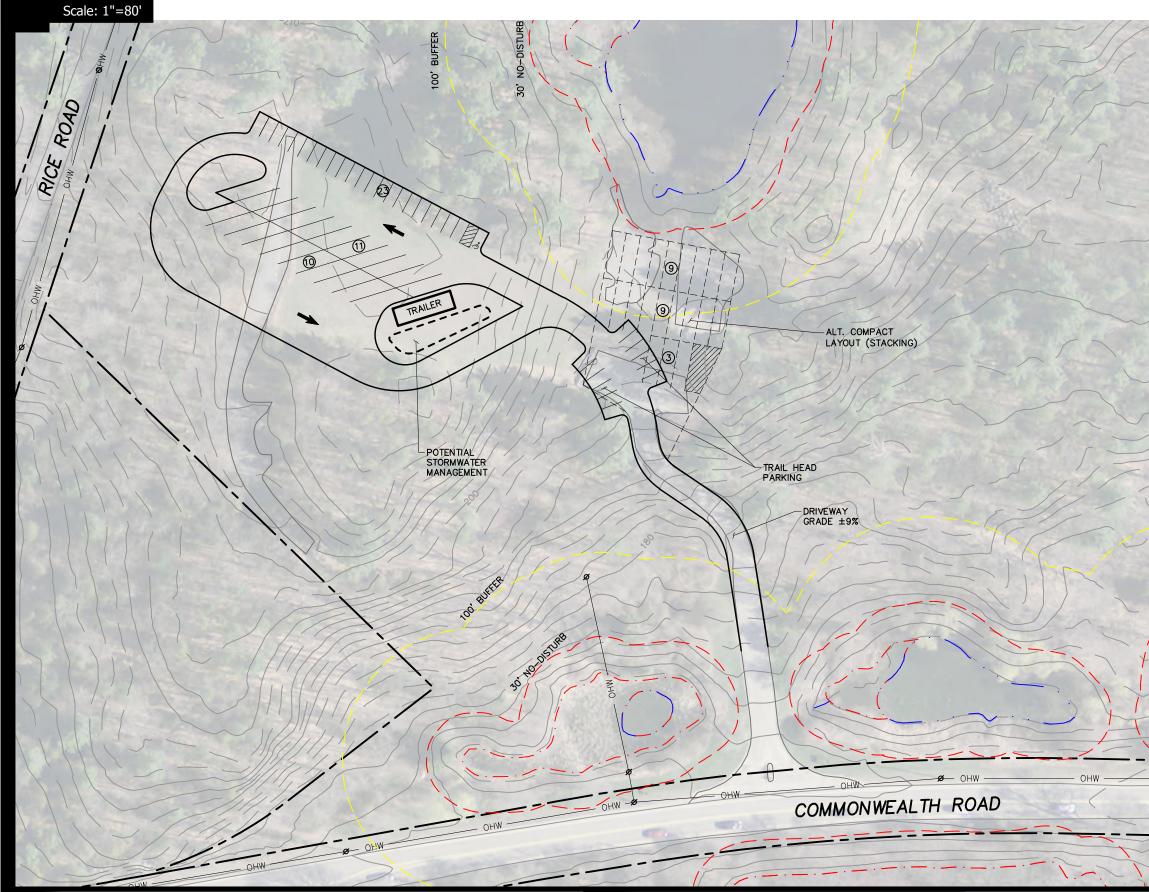
TEC, Inc.

NOTE: THIS CONCEPTUAL LAYOUT PROVIDES A GENERAL CONCEPT INCORPORATING THE REQUESTED PARAMETERS FOR THE BUS PARKING FACILITY. VARIOUS CONFIGURATIONS OF BUS ROUTING AND PARKING CAN BE INCORPORATED. FINAL CONFIGURATIONS CAN BE COORDINATED WITH THE TOWN AND FACILITIES MANAGER DURING FINAL DESIGN.



Concept 3 - Parcel ID: 51C-036E 0 Pemberton Road, Wayland, MA January 6, 2017

Figure 3





NOTE: THIS CONCEPTUAL LAYOUT PROVIDES A GENERAL CONCEPT INCORPORATING THE REQUESTED PARAMETERS FOR THE BUS PARKING FACILITY. VARIOUS CONFIGURATIONS OF BUS ROUTING AND PARKING CAN BE INCORPORATED. FINAL CONFIGURATIONS CAN BE COORDINATED WITH THE TOWN AND FACILITIES MANAGER DURING FINAL DESIGN.

NOTE: FORMER DOW CHEMICAL SITE, POTENTIAL MCP CONCERNS. MASSDEP RTN #3-0003866

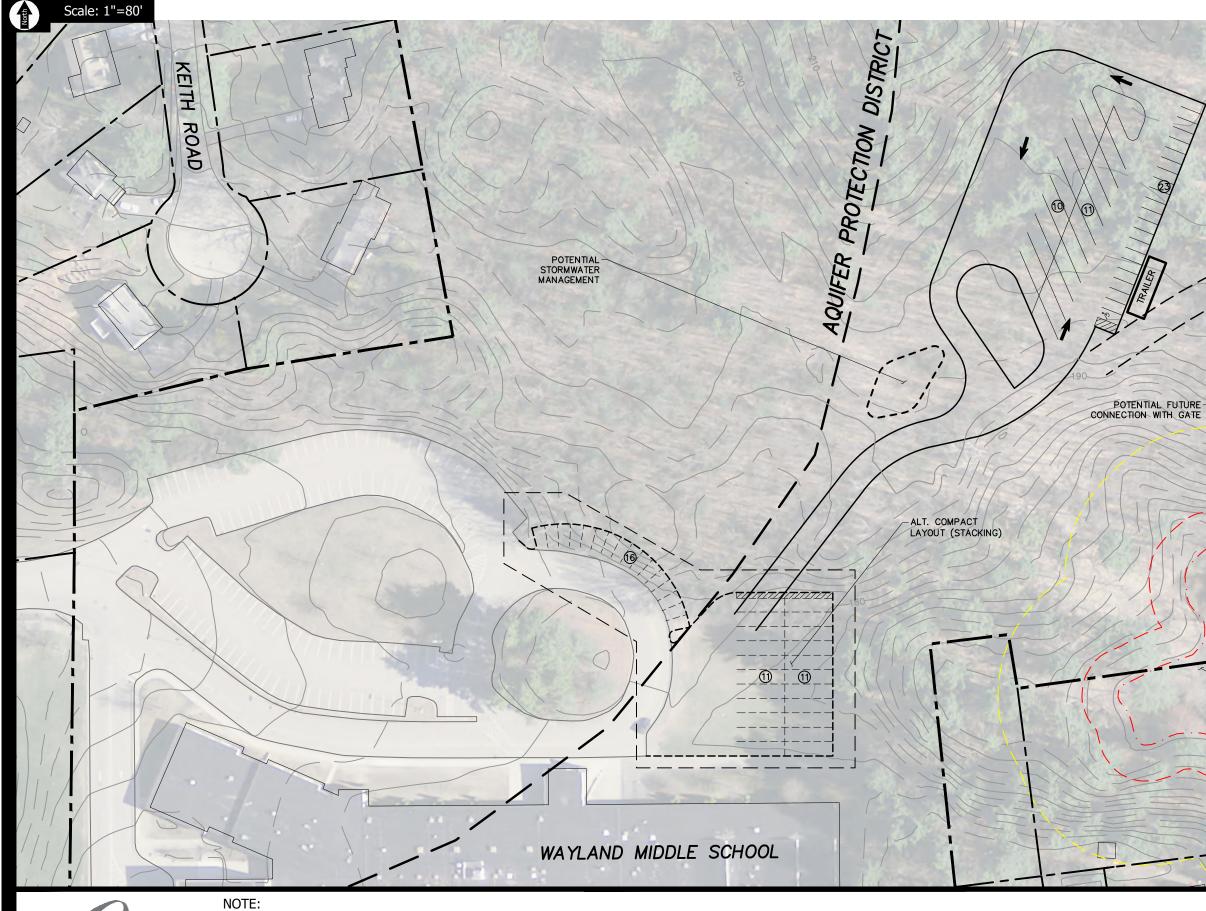
School Bus Parking Site Evaluation - Wayland, MA

/	PARKING TABLE							
/	PROPOSED AUTOMOBILE PARKING	BILE PARKING 23 SPACES						
/	PROPOSED SCHOOL BUS PARKING	21 SPACES						
~	PROPOSED ACCESSIBLE PARKING	1 SPACES (1 VAN-AC	CESSIBLE SPACE)					
	DIMENSIONAL REQUIREMENTS	AUTOMOBILE	SCHOOL BUS					
	PARKING SPACE DIMENSIONS	9.0×18.5FT	12.0×40.0FT					
	AISLE WIDTH (TWO WAY)	24 FT	30 FT					
1								

100' BUFFER

 Join
 <td

Concept 4 - Parcel ID: 49-064B 412 Commonwealth Road, Wayland, MA January 6, 2017





TEC, Inc.

THIS CONCEPTUAL LAYOUT PROVIDES A GENERAL CONCEPT INCORPORATING THE REQUESTED PARAMETERS FOR THE BUS PARKING FACILITY. VARIOUS CONFIGURATIONS OF BUS ROUTING AND PARKING CAN BE INCORPORATED. FINAL CONFIGURATIONS CAN BE COORDINATED WITH THE TOWN AND FACILITIES MANAGER DURING FINAL DESIGN.

School Bus Parking Site Evaluation - Wayland, MA

1	PARKING TABLE					
1	PROPOSED AUTOMOBILE PARKING	23 SPACES				
-	PROPOSED SCHOOL BUS PARKING	21 SPACES				
1	PROPOSED ACCESSIBLE PARKING	1 SPACES (1 VAN-ACCESSIBLE SPACE)				
	DIMENSIONAL REQUIREMENTS	AUTOMOBILE	SCHOOL BUS			
24	PARKING SPACE DIMENSIONS	9.0x18.5FT	12.0×40.0FT			
	AISLE WIDTH (TWO WAY)	24 FT	30 FT			

ROAD

100' BUFFER 30' NO-DISTURE WETLANDS

> Concept 5 - Parcel ID: 47D-058B Wayland Middle School 201 Main Street, Wayland, MA January 6, 2017

Figure 5