

**ATTACHMENT 1:**

**Air Quality Emissions Inventory**

**Construction Assumptions and Schedule  
(for Emissions Inventory Input)**



## RESULTS AND GENERAL CONFORMITY APPLICABILITY

The General Conformity Rule of the federal Clean Air Act (CAA) ensures that federal agencies (including the Federal Aviation Administration (FAA)) do not approve, permit or fund development projects or actions occurring in United States Environmental Protection Agency (EPA)-designated nonattainment or maintenance areas that do not conform to a federally-approved State Implementation Plan (SIP) to attain the National Ambient Air Quality Standards (NAAQS).

The Sheraton Four Points Hotel Demolition project (Proposed Action) is located in Anne Arundel County in Maryland, which is presently designated by the EPA as nonattainment for the pollutants of ozone (O<sub>3</sub>) and particulate matter equal to or less than 2.5 micrometers (fine particulates or PM<sub>2.5</sub>). Therefore, the EPA's General Conformity Rule applies to the Proposed Action and an air quality analysis was prepared. Emissions of nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOC) – the two primary precursors to O<sub>3</sub> formation – as well as PM<sub>2.5</sub> are the focus of the air quality analysis. For this Proposed Action, the applicable *de minimis* thresholds are 100 tons per year of VOC, NO<sub>x</sub>, and PM<sub>2.5</sub>. For completeness, the emissions inventory also included carbon monoxide (CO), particulate matter equal to or less than 10 micrometers (coarse particulates or PM<sub>10</sub>), and sulfur dioxide (SO<sub>2</sub>).

Construction emissions associated with the Proposed Action are presented and compared to *de minimis* thresholds, where applicable, in **Table 1**. Construction emissions include combustion exhaust from equipment and fugitive dust from soil disturbance and demolition activities. Construction is expected to occur during an 18 week period in 2014. As shown, the maximum annual emissions are estimated to be 1.1 tons of CO, 0.9 tons of NO<sub>x</sub>, 7.9 tons of PM<sub>10</sub>, 0.9 tons of PM<sub>2.5</sub>, less than 0.1 ton of SO<sub>2</sub>, and 0.1 ton of VOC. Importantly, the maximum annual emissions of VOC, NO<sub>x</sub>, and PM<sub>2.5</sub> do not exceed *de minimis* thresholds, and hence, construction emissions conform to the applicable SIP designed to attain the NAAQS.

**Table 1** Project-related Construction Emissions Inventory

Pollutant	2014	<i>de minimis</i>	Conforms?
Carbon Monoxide (CO)	1.11	-	Yes
Nitrogen Oxides (NO <sub>x</sub> )	0.87	100	Yes
Particulate Matter 10 micrometers (PM <sub>10</sub> )	7.93	-	Yes
Particulate Matter 2.5 micrometers (PM <sub>2.5</sub> )	0.85	100	Yes
Sulfur Dioxide (SO <sub>2</sub> )	<0.01	-	Yes
Volatile Organic Compounds (VOC)	0.07	100	Yes

**Source:** United States Environmental Protection Agency NONROAD2008a and United States Environmental Protection Agency Motor Vehicle Emission Simulator MOVES2010b.

## **EMISSION REDUCTION MEASURES**

Although construction-related emissions associated with the Proposed Action are considered to be *de minimis* under the CAA General Conformity Rule and are temporary in duration (i.e., 18 weeks), these emissions can be further reduced by employing the following measures. Importantly, the fugitive dust calculations prepared in support of this air quality analysis account for implementation of these measures as they relate to dust control (i.e., periodic watering):

- Reduction of exposed erodible surface area through appropriate materials and equipment staging procedures;
- Cover of exposed surface areas with pavement or vegetation in an expeditious manner;
- Reduction of equipment idling times;
- Ensure contractor knowledge of appropriate fugitive dust and equipment exhaust controls;
- Soil and stock-pile stabilization via cover or periodic watering;
- Use of low- or zero-emissions equipment;
- Use of covered haul trucks and conveyors during materials transportation;
- Reduction of electrical generator usage, wherever possible;
- Suspension of construction activities during high-wind conditions;
- Creation of dust, odor and nuisance reporting system;
- Daily watering of exposed surfaces and demolition activities;
- Reduction of vehicles speeds onsite; and
- Prohibition of open burning for waste disposal.

# Maryland Aviation Administration: BWI Marshall

## Sheraton Four Points Hotel Demolition

January 31, 2014

These assumptions are based upon information given in the “Four Points by Sheraton BWI ESA Rpt.pdf” document, AECOM; dated June 7, 2012 and crew data from RS Means. Other documents used were provided by MAA. In addition, because limited quantities are given, production rates of crews are rough estimates and illustrate what a builder could realize. Likewise this schedule is not to be used as an actual construction schedule; its production is intended only to create a rough estimate of equipment usage during construction.

### **ASSUMPTIONS:**

1. The schedule will use days as its unit of time; crew shifts will be 10hrs per day; 6 days per week.
2. The NTP for this schedule will be March 31, 2014 based upon the provided document: “Hotel Demo Project Schedule 012414.pdf”.
3. Production rates were derived utilizing available data from previous airport projects such as Charlotte Douglas and the BWI Hotel Environmental Assessment (EA). Other data was sourced from RS Means Productivity Standards for Construction and other web sources.
4. It is assumed that there will be one (1) Owner’s Representative on site with a Pickup truck for the duration of the work.
5. No Maintenance of Traffic (MOT) is needed as the building is being demolished in an area not impeding the airport’s traffic flow.
6. All trucks are assumed to have a haul distance of no more than 10 miles one-way. Assume two (2) Tractor Trailer trucks per week, during salvage operations to pick up interior items.
7. Production rates and crew sizes are as follows:

**Administrative Support Team (ADMIN)**

<b>Labor</b>	<b>Equipment</b>
1 – Project Manager	1 – SUV
2 – Field Engineers	2 - Pick-ups
1 – Administrative Assistance	1 – Fuel Truck
1 – General Superintendent	1 – Maintenance Vehicle with Crane
1 – Safety Manager	
1 – Mechanic	
1 – Fuel Truck Operator	

This team will be in place for the duration of the contract and will provide managerial oversight for the project.

**Salvage Crew (SALV)**

<b>Labor</b>	<b>Equipment</b>
1 – Equipment Operators	1 – Pick-up
2 – Laborers	1 – Tractor Trailer Truck
2 – Truck Drivers	1 – F.E. Loader, 2.5CY (170 H.P.)
	1 – 16 CY / Dump Trucks

Assume one trip at the end of each day to dispose of the materials gathered from each building.

**Building Demo Crew (BLDDEM)**

<b>Labor</b>	<b>Equipment</b>
1 – Foreman	1 – Pick-up
2 – Equipment Operators	1 – Hydraulic Excavator
2 – Laborers	1 – F.E. Loader, 2.5CY (170 H.P.)
2 – Truck Drivers	2 – 16 CY / Dump Trucks

Production rate of building demolition is 14,800 CF per day.

**Fence Crew (FNC)**

<b>Labor</b>	<b>Equipment</b>
1 – Foreman	1 – Pick-up
1 – Equipment Operators	1 – Flat Bed Truck, 3 Ton
3 – Laborers	1 – Fence Post Auger
1 – Truck Drivers	

Production rate is 300 L.F. per day; with one day to install an access gate.

**Mobilization Crew (MOB)**

<b>Labor</b>	<b>Equipment</b>
3 – Truck Drivers	3 – Tractor Trailer Trucks
4 – Laborers	1 – Fork Lift
1 – Equipment Operator	

This crew is use during Mobilization in conjunction with the ADMIN Support Team.

**Asbestos / Haz-Mat Abatement Crew (ASBES)**

Labor	Equipment
1 – Foreman	2 – HEPA Vacs., 16 Gal.
7 – Workers	

This crew is used to remove the Asbestos / Haz-Mat materials from the work site.

Production rate is 14,000 S.F. per day.

**Seeding Crew (SEED)**

Labor	Equipment
1 – Foreman	1 – Pick-up
1 – Operator	1 – Backhoe Loader w/attachment (48 H.P.)

Production Rate for seeding is 52 M.S.F. per day.

**Asbestos / Haz-Mat Abatement Crew (ASBES2)**

Labor	Equipment
1 – Foreman	3 – HEPA Vacs., 16 Gal.
7 – Workers	4 – Airless Sprayers
1 – Driver	1 – Tractor Trailer Truck

This crew is used to remove the asbestos / Haz-Mat materials from buildings.

Production rate is 2,100 S.F. per day.

**Interior Demolition Crew (INTDEM)**

Labor	Equipment
1 – Foreman	1 – Pick-up
1 – Operator	2 – 16 CY / Dump Trucks
2 – Laborers	Gas Engine Power Tools
2 – Truck Drivers	

Production rate of selective Interior Demo is 400 S.F. per day.

**Grading Crew (GRADE)**

Labor	Equipment
1 – Foreman	1 – Pick-up
3 – Operators	1 – 30,000 Lbs Grader
1 – Laborer	1 – Tandem Roller
	1 – 200 H.P. Dozer

Production rate 3,500 S.Y. per day.

**Utilities (UTIL)**

<b>Labor</b>	<b>Equipment</b>
1 – Foreman	1 – Pick-up
10 – Operators	2 – Crew Truck
5 - Laborers	1 – Hydraulic Excavator
2 – Welders	2 – F.E. Loader, 2.5CY (170 H.P.)
	2 - Low Boys
	1 - Backhoes
	3 – 10 CY / Dump Trucks
	2 – Arc Welders
	1 – Compressor
	1 – Vibratory Roller

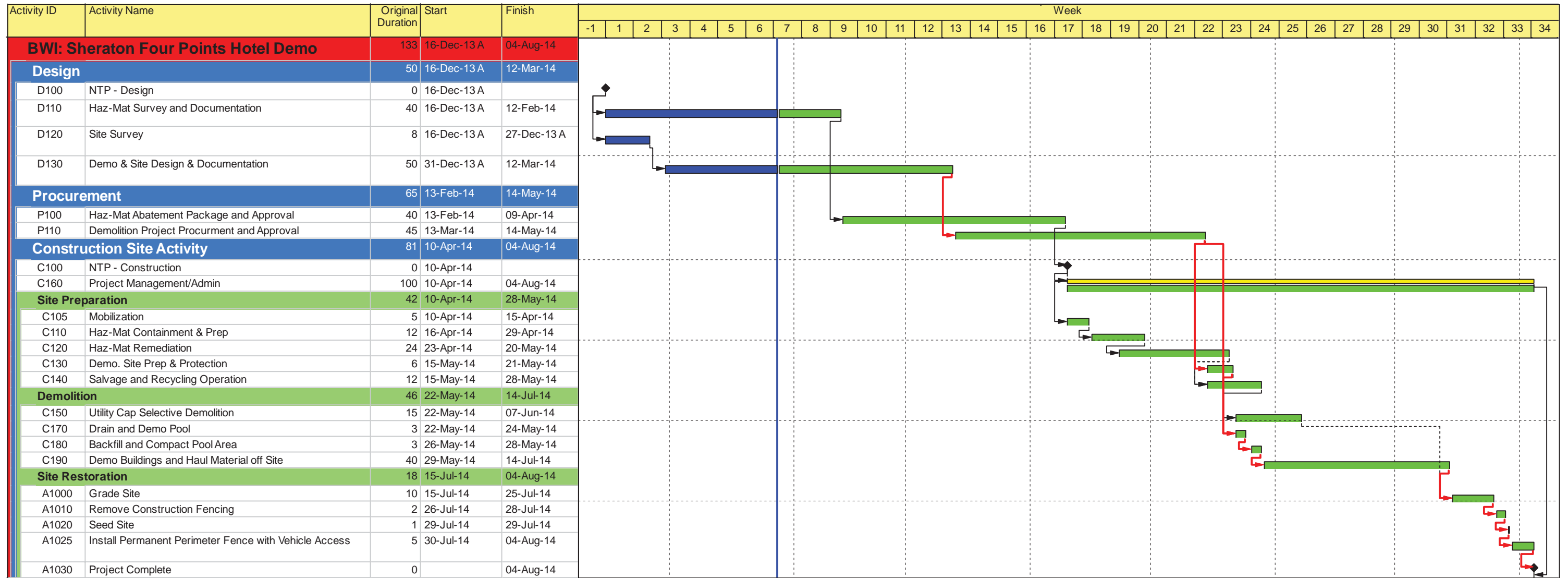
Production rate of Trenching is 200 linear feet per day. This crew will be used to remove and cap existing utilities that will no longer be in use.

**Water Removal Crew (DEWATER)**

<b>Labor</b>	<b>Equipment</b>
1 – Foreman	1 – Pick-up
1 – Operator	1 – Water Truck (Diesel) 5,000 Gallon Tank Capacity (750 GPM Pump, on-board)

Assume a 10 mile round trip for disposal. Production rate is 5,000 gallons per hour removed.





█ Remaining Level of Effort   
 █ Actual Work   
 ◆ Milestone   
 █ Remaining Work





