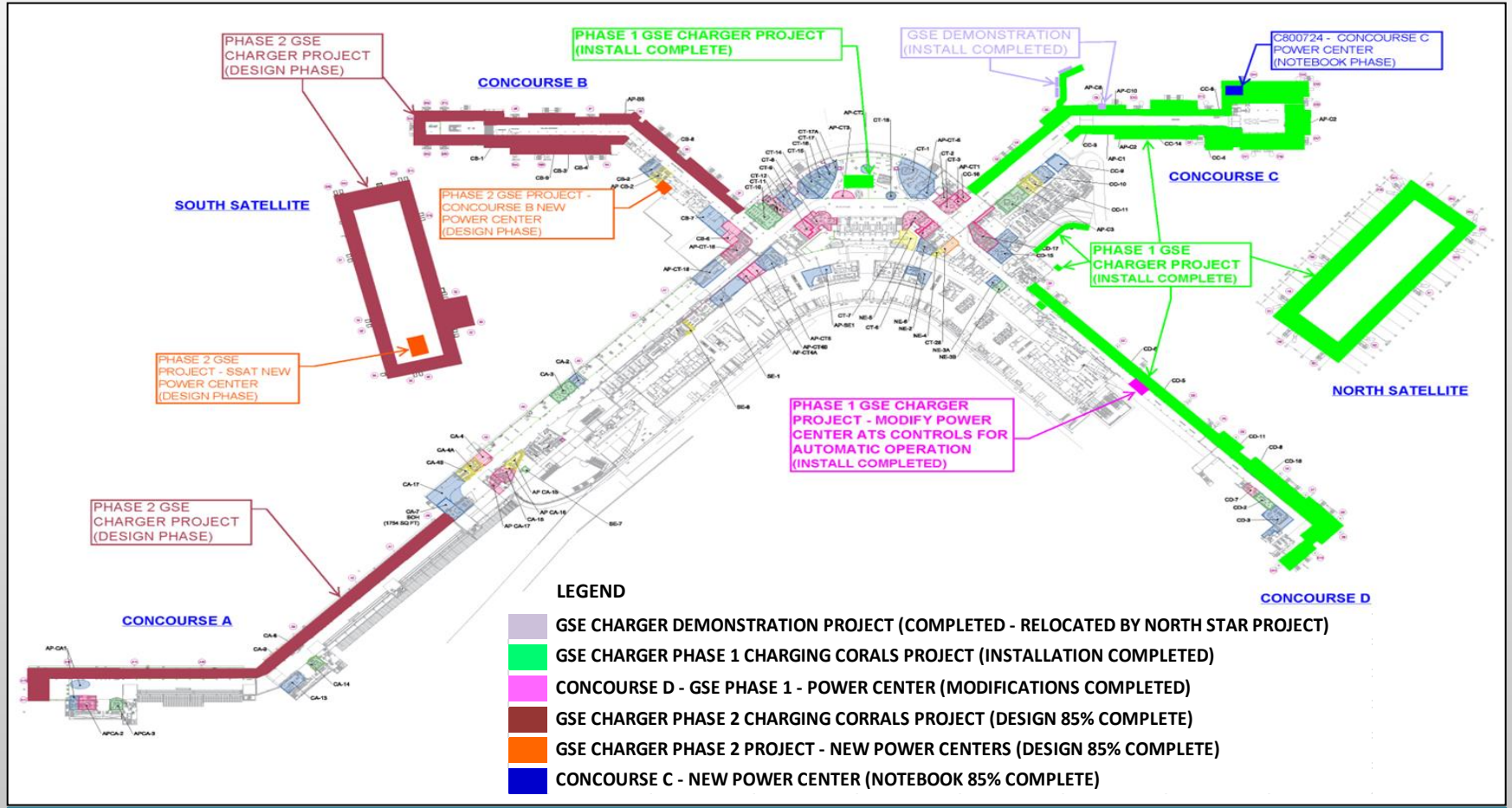
Item No. 4b_Supp
Date of Meeting: September 13, 2016

Electric Ground Support Equipment (EGSE) Charging Stations

Port of Seattle



EGSE Locations & Power Centers

Project Scope of Work

Summary of Work Phase 1 & 2 (Bold Items Phase 2 Work)
Upgrade Concourse D existing Power Center - install controls to automate existing bus transfer scheme.
Reduce electrical load on Concourse C power center by re-routing sub-feeder circuits to C1 power center.
Install electrical GSE chargers throughout AOA ramp area that includes approx. 500 charge ports at: • **Concourses A, B**, C and D • North and **South Satellites**
Add two new power centers to support the additional GSE Charger electrical loads at: • **Concourse C** *(Separate Project C800724)* • **Concourse B** • **South Satellite**
Install a distributed data collection network that will collect metered power consumption charger log data for billing & other historical system reports.
Develop reporting system to provide various system historical, trend and GSE vehicle maintenance reports.

Simplified overview of project scope of work

GSE Phase 1 Installation Summary

GSE CHARGER PHASE 1 LOCATIONS	TOTALS
Concourse C	
Total Corrals	16
Total Charger Ports	114
Concourse D	
Total Corrals	16
Total Charger Ports	72
North Satellite	
Total Corrals	14
Total Charger Ports	92
CTE BAGWELL	
Total Corrals	4
Total Charger Ports	8
Grand Totals	
Grand Total Corrals Installed	50
Grand Total Charger Ports	286

Summary of Charger Ports for Phase 1

GSE Phase 2 Installation Summary

GSE CHARGER PHASE 2 LOCATIONS	TOTAL
Concourse A	
Total Corrals	17
Total Charger Ports	76
Concourse B	
Total Corrals	19
Total Charger Ports	70
South Satellite	
Total Corrals	11
Total Charger Ports	72
Grand Totals	
Grand Total Corrals Installed	47
Grand Total Charger Ports	218

Summary of Charger Ports for Phase 2

Concourse D, C and NSAT Complete

Alaska, Horizon and Delta Utilizing System

Distributed data collection network providing power consumption, charger performance, billing & other historical system reports.

Accomplishments

Typical GSE Charger Corrals

The electrical charging system allows the airlines at the Airport to use electrically powered ground service equipment.

Two Charger Ports

Four Charger Ports

Ten Charger Ports

Multiple Charging Ports can be Derived from One Branch Circuit – Reduces Costs

Charger Technical Specifications

The Fast Charge GSE system consists of a PowerServer, multiple Power Stations and a Battery Monitor Identifier (BMID) installed in each GSE vehicle. The BMID communicates with the Battery Charger

- Rated for outdoors.
- Automatic start/stop.
- Anti-arcing disconnect.
- High power factor.
- Ultra-low harmonic distortion.
- Branch circuit 480VAC, 3 Phase input.
- Charger ratings 30kW, 40kW & 80kW DC output.
- Eliminates the need for battery changing.
- Electric GSE Tugs running on one battery all day.

Multiple Charging Ports can be Derived from One Branch Circuit – Reduces Costs