

LCC Gondola & BCC Bus Hub

Goal: Reduce wintertime traffic in the canyons

Solution: Park-and-Ride

Centralized = Bottleneck

Convenient & Reliable = TBD

Bottleneck Number: Maximum number of people that can be evacuated from garage/hub per hour

Two Key Timing Issues for moving people (not addressed by UDOT)

(1) Time it takes to move a large number of people

Formula = total # of people / bottleneck #

LCC: # of people / 1,050 people per hour

BCC: # of people / (# of buses/hour x bus capacity)

(2) Time it takes to move an individual = Queuing time

Formula: # of people in front of you / bottleneck #

Large Numbers: LCC Gondola

Garage capacity 2,500 vehicles = 5,000 people

Bottleneck # = 1,050 people per hour

5,000 people/1,050 = 5 Hours

Large Numbers: BCC Hub

Garage capacity: 1,750 vehicles = ~3,600 people

Buses at 5 min intervals = 12 buses/hour

Bus capacity: 50 people

Bottleneck #: (# of buses/hour) x (bus capacity)

12 buses x 50 people = 600 people per hour

3,600 / 600 = 6 Hours

Queuing -- LCC & BCC

Gondola: # of people in front of you / 1,050

2,000 / 1,050 = **2 H**

Bus Hub (5 minute intervals)

1,200 / 600 = **2 H**

Dynamics

12 Minutes -- AM vs PM volumes -- Shelters -- Uber

Conditions

Garage -- 6x up-down -- You're Already There

Implications

LCC Gondola

	# of People	Time to Evacuate	
AM	5000	5H	7:00 - 12:00
PM	5000	5H	3:00 - 8:00
			+ 30-40 minutes

BCC Bus Hub

Bus Frequency	Buses / Hour	# of passengers/hour @ 50 riders/bus	# of hours to load 3,600 Passengers	1 st Bus 7:00 AM -- 3,600th passenger boards a bus at:
5 minutes	12	12 x 50 = 600	3,600/600 = 6 H	1:00 PM
7 minutes	9	450	8 H	3:00 PM
10 minutes	6	300	12 H	7:00 PM
15 minutes	4	200	18 H	1:00 AM the next day

Queuing for the Gondola

# People ahead of you in line	35 Riders / car	Your Gondola Car	Your Wait Time 2 min / car
350	350 / 35	10 th in line x 2 min =	20 min
1,050	1,050 / 35	30th	60 min
2,800	2,800 / 35	80th	~ 3 hours
5,000	5,000 / 35	142nd	~5 hours
The AMs could easily see 2-3 hour queues & the PMs 3-4 hour queues			