CROWD SAFETY MODELS

PLANNING (FOR CROWDS)

Planning is an unnatural process
It is much more fun to do something
The nicest thing about not planning is that

Failure comes as a complete surprise
Rather than being preceded by a period of worry and depression.

Sir John Harvey Jones MBE

CROWD PLANNING PRINCIPLES:

Mathematics – The understanding of flow rates and arrival/departure rates. Volume/area, basic calculations of capacity and density.

Physics – Understanding the nature and effects of pressure on the human body, hydraulic pressures, barrier strengths and pressure impacts.

Psychology – Understanding human behaviours and ‘drivers’ in normal, crisis and emergency modes. Understanding normalcy bias versus dread theory and the effective means of overriding the Reticular Activation System.

Experience – Understanding diverse challenges such as client artistic imperatives versus budget. What can barriers withstand, appropriate use and tolerances. Weather, hills, grass length, puddle avoidance. Panic is a myth!
CROWD MANAGEMENT

The systematic planning for and supervision of: orderly movement, assembly and dispersal of people. It includes the assessment of the people handling capability of a space before its use and includes:

- Evaluation of projected levels of occupancy
- Adequacy of means of ingress and egress
- Processing procedures such as assisting and directing members of the public
- Expected types of activities and crowd behaviours
- Evaluation of crowd dynamics and crowd safety

UK: BS8406 Event Stewards

CALCULATING SAFE CAPACITY

- How much space have I got?
- How much space is available to use?
- How much ingress access have I got?
- How much egress access have I got?
- Calculate speed of both
- What if I lose an area/route?
- How quickly do I need to get them out?
- Calculate total available space, calculate ingress rate, calculate egress rate, calculate evacuation (minus the largest exit for both egress and evac) = 4 figures
- Safe capacity is the lowest

CROWD MANAGEMENT QUESTIONS?

- Who is responsible?
- What are the phases?
- What can you predict?
- What can you guess?
- What might change?
- What might catch you out?
CROWD CONTROL

- Crowd control is a practice where large crowds are controlled by force or the intimation of force by public authorities with the intent of preventing, controlling or maintaining crowds in such a way as to minimise criminality, damage or injury to others.
- It is the enforced will of one group of people upon another.
- Normally involves police or even the military.

CROWD MANAGEMENT V CROWD CONTROL

- Crowd control is the use of force, physical or otherwise to impose the will of those in control upon those being controlled (barriers, directions, cordons).
- Crowd management is the use of information, design and management to influence a crowd to follow a certain route, path or form of behaviour which the crowd manager has chosen to be the safest whilst achieving the objective.
- Sometimes the crowd will not be aware it has been managed, where it is influenced rather than directed.

DOES IT MATTER?

- Do people like to be ‘controlled’?
- Do most people like being ‘managed’?
- Do people even know the difference?
- Its not what you say but how you say it
MODELS

“We build models to understand a particular phenomena or characteristic of a system.

We build models to understand the relationship between cause and effect.

We build models to improve our understanding because with a good model comes discovery, with discovery comes understanding and with understanding comes control”.

Dr Prof G Keith Still

MODELS

• We build models (and make plans) to recognise when reality is deviating from what we hoped it to be.

• Early recognition leads to prompt intervention and a better chance of recovery to the plan.

• Failure to recognise deviation from the plan will inevitably lead to the total failure of the plan.

Eric Stuart 2006 – New Year’s Eve investigation.

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Crowd Planning Principles:

DIMICE
APR/AAICEDE
RAMP
GENTIAN
APR: CROWD MANAGEMENT PLANNING WITH AAICEDE

**Analysis**
- Profile
- Event
- Venue
- Variables

**Prediction**
- Environmental
- Management
- Information

**Response**
- Arrival
- Assembly
- Ingress
- Circulation
- Exit
- Dispersal
- Escape/Evacuation
Profile:
Who are the people?
What will they need and expect?
How are they likely to behave?

PEOPLE:
Individuals
Family Groups
Coach parties [crowd]
Single sex groups
Wheelchairs
Dogs
Baggage

EXPECTATIONS:
Opening (delays)
Partial (staged)
Opening
Washrooms
Refreshments
Welfare (water/shade)
Early doors
Delayed starts

BEHAVIOUR:
Running for the doors
Running for FOS
Delayed opening
Rides closed
Major incident
Major incident elsewhere

Crowd Behaviour Analysis

ANALYSIS

Venue:
Where is the event being held?
Unique event?
Adapted venue?

VENUE
Familiar for the crowd
Familiar for the staff
Additional staff
Night/day
Areas out of bounds
All escape routes open

EVENT
Different clients
Different times
Alcohol

ADAPTIONS
Briefings (re-briefing)
Recalculate
Reassess
Walk through

ANALYSIS

Variables and Unique Factors

Weather
Transport
Conflicts
Media
Cancellation
Buses/Trains
Other event
Hype
Restriction [rides]
Car Parks
Competition
Can they arrive?
Highway jams
Can they leave?
Monitoring
Information
ANALYSIS

New Event

What is the event?
What makes the event unusual or a particular concern?
What challenges do the performers bring?
Profile the performer
Profile the supporters

PREDICTIONS

Based on the analysis we make predictions of......
.....how people are expected to behave during each phase of the event.
Arrival
Assembly
Ingress
Circulation
Egress
Dispersal
Evacuation

APR MATRIX

A completed APR Matrix will highlight your crowd management priorities and activities.
The activities must be risk assessed.
The activities must be planned.
RAMP ANALYSIS

ROUTES – IN AND OUT
- Bus Stations
- Car Parks
- Local residential conurbations
- Local pubs/restaurants/cafés
- Train Stations (which one)?
- Other events
- Other entertainment
- Alternative routes
- Shortcuts
- Alternative route persuasion

AREAS – (SPACES)
- What spaces are available?
- How will they fill?
- Will sight lines be acceptable?
- Will we need to kill sight lines?
- Stand on arrival or sit
- Find a wall or roof to climb
- Street furniture (view and climb)
MOVEMENT – FLOW RATES (WHICH ONE)

- Flow rate speeds
- Early arrivals (duty of care)
- First arrivals
- Peak arrival capacity
- Late arrivals (show delay)
- How soon do the best views fill?
- How good are the alternatives?
- Variables on arrival rates

PROFILE

- Drugs
- Event type
- Genre
- Demographic (Age/sex/race/fitness/health/groupings)
- Enthusiasm
- Determination
- Alcohol

RAMP MODEL

- Routes – Where are people coming from and going to? How will they leave? How are they arriving, where are the transport hubs, car parks, local high residence areas?
- Areas – What areas or spaces are people trying to reach, how will they be used, single direction or multiple? Standing or seated, climbing to gain a view?
- Movement – When will people arrive, over what period (how motivated are they)? How quickly do the best spaces fill? How soon after do the secondary spaces fill? How soon before there is no space. Then what? What could change it?
- Profile – Who are they? What is the demographic/motivation behind them coming? What do we know about them, history of the band, behaviours?
GENTIAN METHODOLOGY FOR CROWD PLANNING

Maximum Safe Capacity
Methodology – Eric Stuart

- ARRIVAL PROFILE
- ENTRANCE WIDTHS
- FILL RATE
- INGRESS MAX CAPACITY

- Early/late, last minute
- Search regime, ticket checking
- Number and width of gates
- Can be increased with more gates etc.

Lowest P+S
Apply the lowest factor

- Safety Management and Physical restrictions
- Remove dead areas; site lines, infrastructure, reduced vision

AUDIENCE PROFILE
Event, performer, audience behaviour, activity etc.

Expected Average Density
2/3/4 PPSM

Calculate Available holding space
JUST REMEMBER THIS

CHICKEN AND THE EGG SYNDROME

Questions?