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TOWARDS A STATE GOVERNMENT TRANSPORT NOISE POLICY

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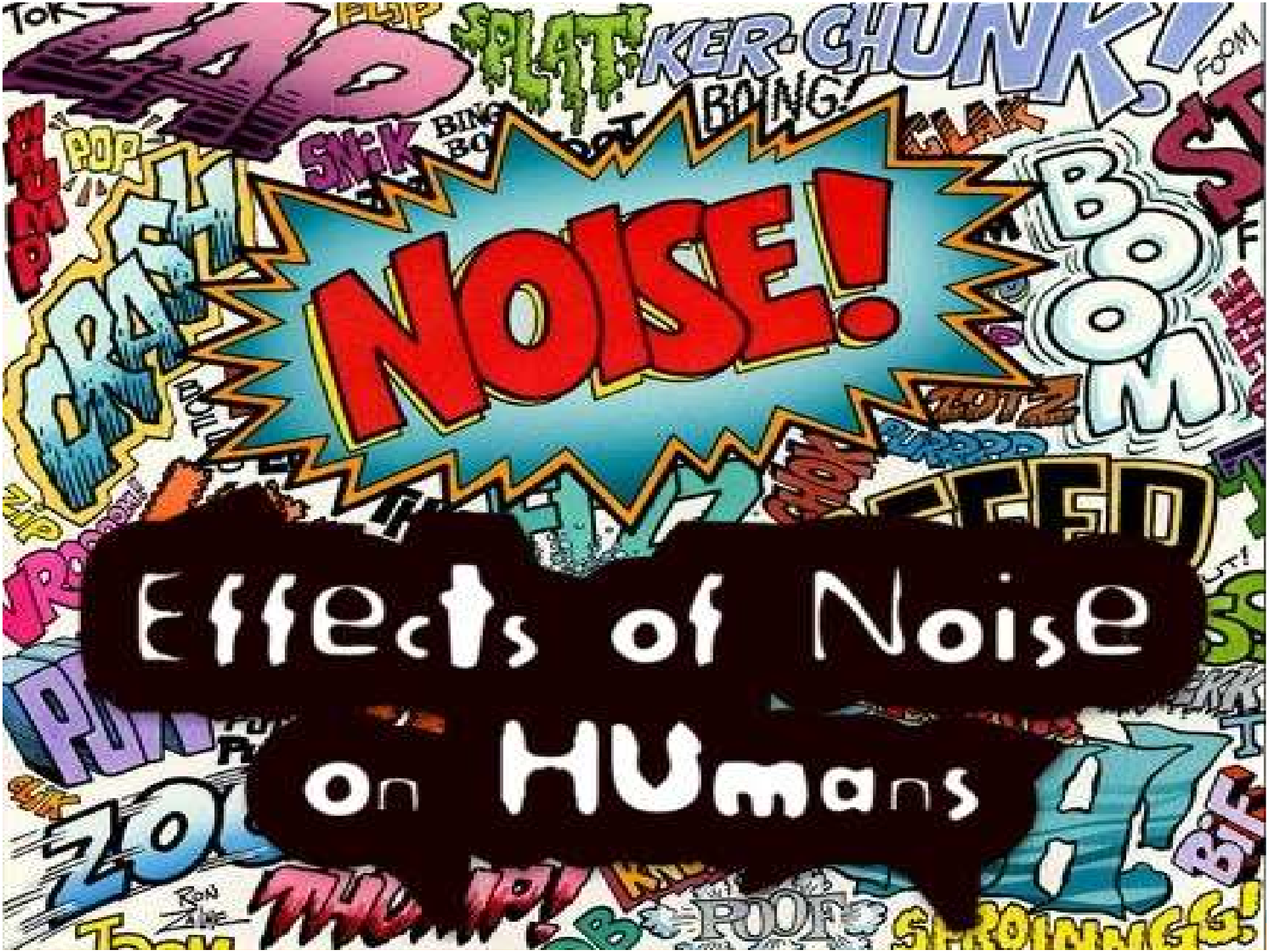
TOWARDS A STATE GOVERNMENT TRANSPORT NOISE POLICY

- **Effects of Noise on Humans**
- **Development of State Government Policy**
  - Draft State Planning Policy on Transport Noise
  - EPA Preliminary Draft Guidance No. 14


NOISE!
Effects of Noise
on HUmans

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Effect of Noise on Humans

NOISE AND NERVES

Noise causes stress hormone release -

- Adrenaline and noradrenaline - “fight or flight”
- Cortisol - “defeat”

Self-regulation of stress response

- Control - not annoyed
- Inability to self-regulate - aggression or learned helplessness

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Effect of Noise on Humans

NON-AUDITORY PHYSIOLOGICAL EFFECTS

Noise, stress hormones and blood pressure linked

Pathways to possible -

- heart disease - sufficient evidence for causal link
- mental illness - studies unclear, may cause stress
- immune disorders - limited evidence
- low birth weight - limited evidence

Trend: noise ⇢ hypertension ⇢ heart disease above -

- 65dBL$_{Aeq}$ (day)
- 55dBL$_{Aeq}$ (night)

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Effect of Noise on Humans

NOISE AND PERFORMANCE

Noise ⇒ cortisol ⇒ reduced performance

Good evidence of effects on complex tasks

Demonstrated in Munich Airport study (ICBEN 1998)

RANCH Study preliminary results show effects on -

- reading comprehension
- conceptual recall
- information recall
- recognition in long term memory and prospective memory

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Effect of Noise on Humans

EFFECTS OF NOISE ON SLEEP

Noise disturbs sleep ⇢ awakenings and changes of sleep state

Affects mood, performance and perceived well-being

Reported sleep quality and complaints are poor indicators

Habituation - partial only

Long term health - need to know more about sleep, what to measure

Dose-response relationships

- "good" sleep <10-15 events/night at max of 45dB(A)
- "critical load" 6 events/night at max of 60dB(A)

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Effect of Noise on Humans

COMMUNITY RESPONSE TO NOISE

Complaints a poor indicator of annoyance

Large annoyance studies used for considering noise criteria

Miedema's analysis of % Highly Annoyed -

L_{DN} [dB(A)]	Road	Rail
50	4%	3%
55	8%	5%
60	13%	8%
65	20%	11%

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Effect of Noise on Humans

FACTORS AFFECTING RESPONSE TO NOISE

Objective

Level of noise

Emergence above ambient

Nature, duration, how often it occurs

Characteristics – tonality, modulation, impulsiveness (eg train horn)

Time of day or week

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Effect of Noise on Humans

FACTORS AFFECTING RESPONSE TO NOISE

Subjective

Activity of receiver and state of health /mind

Attitude to noise source or noise emitter

Information content of source, recognition (fear, familiarity)

Controllability of the source or the received level

Community expectations, especially when change occurs!

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Transport noise policy in WA

FACTORS INFLUENCING NOISE POLICY

People

Health, amenity, sleep, performance

Precedent

Policies adopted in WA and other countries/States

Practicability

Cost, technical availability of solutions to meet targets

Politics

Political will amongst politicians and agencies

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Transport noise policy in WA

SOME DEVELOPMENTS

1980's

Main roads noise policy

Westrail noise policy

1998

EPA preliminary draft Guidance 14 – Road and Rail Transportation Noise

2005

Draft State Planning Policy – Transport Noise

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Transport noise policy in WA

DRAFT STATE PLANNING POLICY

Whole–of–Government WG under WAPC

Transport, Planning, Main Roads, Westrail, Environment

Scope

New or upgraded road and rail infrastructure

Planning for new noise-sensitive developments

Not retrospective

Doesn't address ground vibration

Objectives

Minimise noise impacts of roads and railways

Establish criteria for consistent assessment

Identify proposals needing noise mitigation

Avoid adverse effects on corridors

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Transport noise policy in WA

DRAFT STATE PLANNING POLICY - PROCESS

Study of precedents

- ERM report on other policies
- Recommended noise level criteria

Study into practicability

- Lloyd Acoustics examined recommended criteria against a series of road and rail scenarios

Draft policy

- Released for public comment in 2005
- Still being finalised

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Transport noise policy in WA – Draft SPP Criteria

Time Period	Exposure Level 1 *(Target)*	Exposure Level 2 *(Conditionally acceptable)*	Exposure Level 3 *(Unacceptable new projects)*
Day (6am – 10pm)	L_{Aeq} <55dB(A)	L_{Aeq} 55-60dB(A)	L_{Aeq} >60dB(A)
Night (10pm – 6am)	L_{Aeq} <50dB(A)	L_{Aeq} 50-55dB(A)	L_{Aeq} >55dB(A)

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DRAFT STATE PLANNING POLICY - COMMENT

Criteria

- L_{Aeq} (average) levels deal well with long term health issues
- Good balance between amenity and practicability issues
- Also include max noise level criteria for small numbers of train movements to deal with sleep disturbance issues (under discussion)

Planning measures

- Draft SPP contains a range of practical planning measures
- Also producing Guidelines for Implementation – good
- Implementation needs to be made simple enough that it will be applied

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DRAFT SPP – IMPLICATIONS FOR RAIL

SPP designed for planning not operations

- Affects new developments near railways – protects corridor
- Affects design of new or upgraded railways
- Doesn’t affect rail operations on existing railways

EPA will use it

- EPA has been using draft SPP criteria for Part IV assessments
- Example: South-West Metro Railway

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WHERE ARE WE AT?

SPP nearly there

- We have done the work (People, Precedents, Practicability)
- Political issues – eg. housing affordability
- Needs finalisation and Guidelines
- DPI aim to get it to WAPC by November

EPA Guidance 14

- EPA has been using Guidance 14 to assess impacts of proposed road and rail traffic increases on existing corridors (not covered by SPP)
- Revision planned for 2008

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ARE WE GOING "TOWARDS" A STATE GOVERNMENT TRANSPORT NOISE POLICY?

YES – SLOWLY!