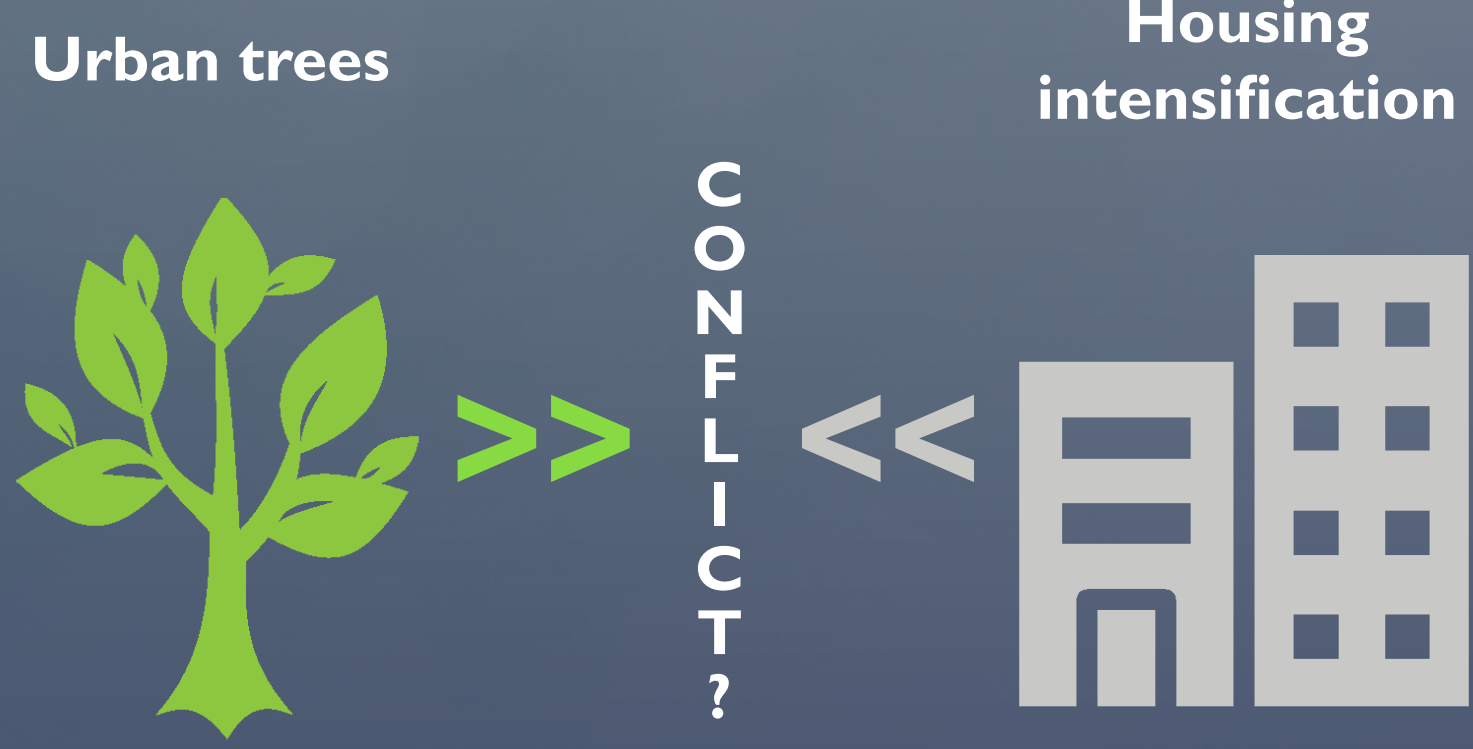


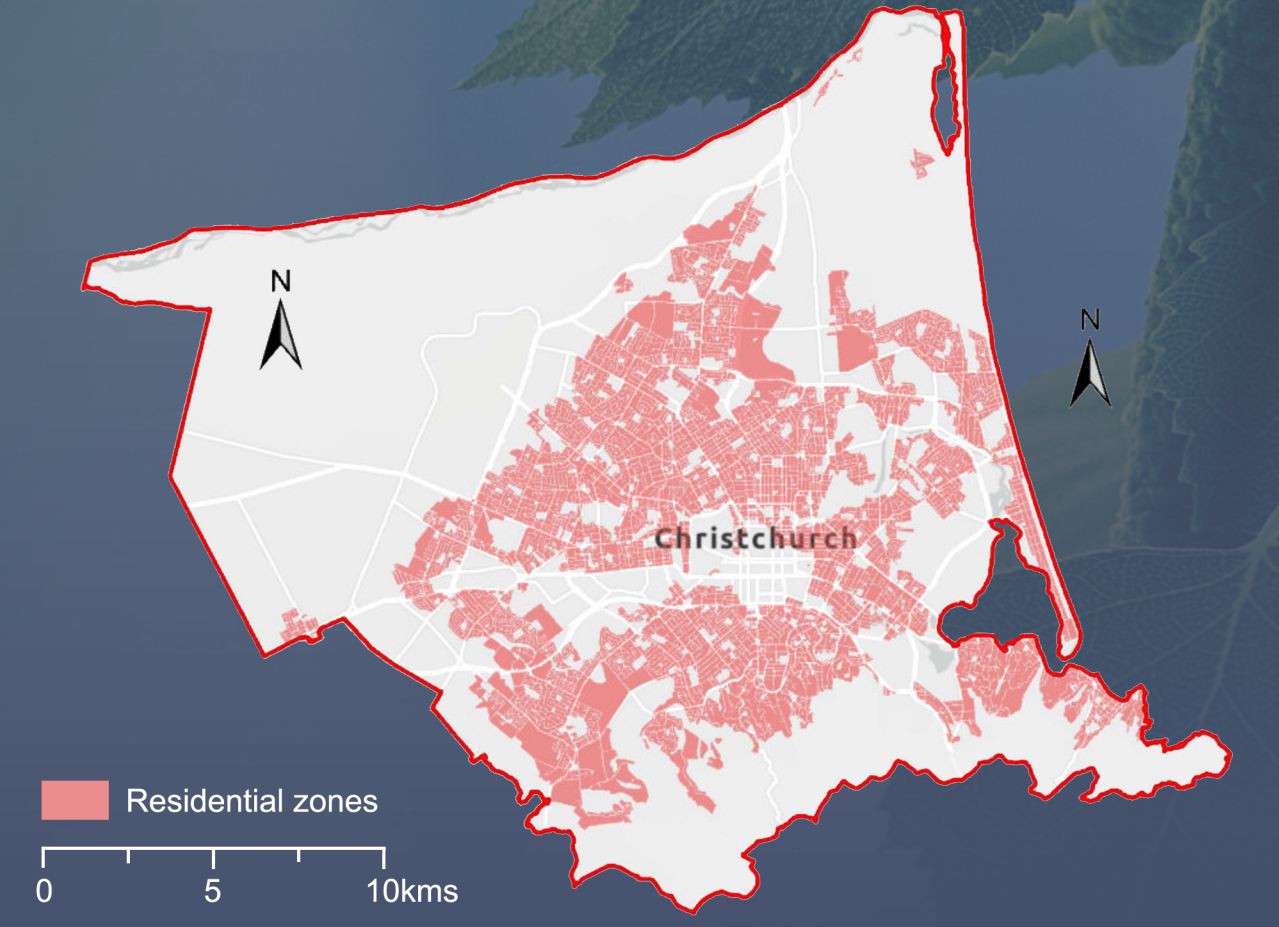
THE ISSUE



RESEARCH OBJECTIVES

1. To identify and quantify the **loss of existing trees** from private residential land in Christchurch between 2015 and 2021.
2. To assess the relationship between tree loss and residential **housing intensification**
3. To determine whether the loss of trees from housing intensification has been **offset by new plantings** on private and public land
4. To evaluate whether **regulation** is an effective approach for protecting urban trees from housing intensification

STUDY AREA



RESEARCH QUESTIONS

1: Tree loss

- Total tree loss in Christchurch (2015 to 2021)?
- Distribution of loss on private vs public land?

2: Housing intensification

- Relationship between tree loss and intensification?
- Impact of density and/or form of intensification?

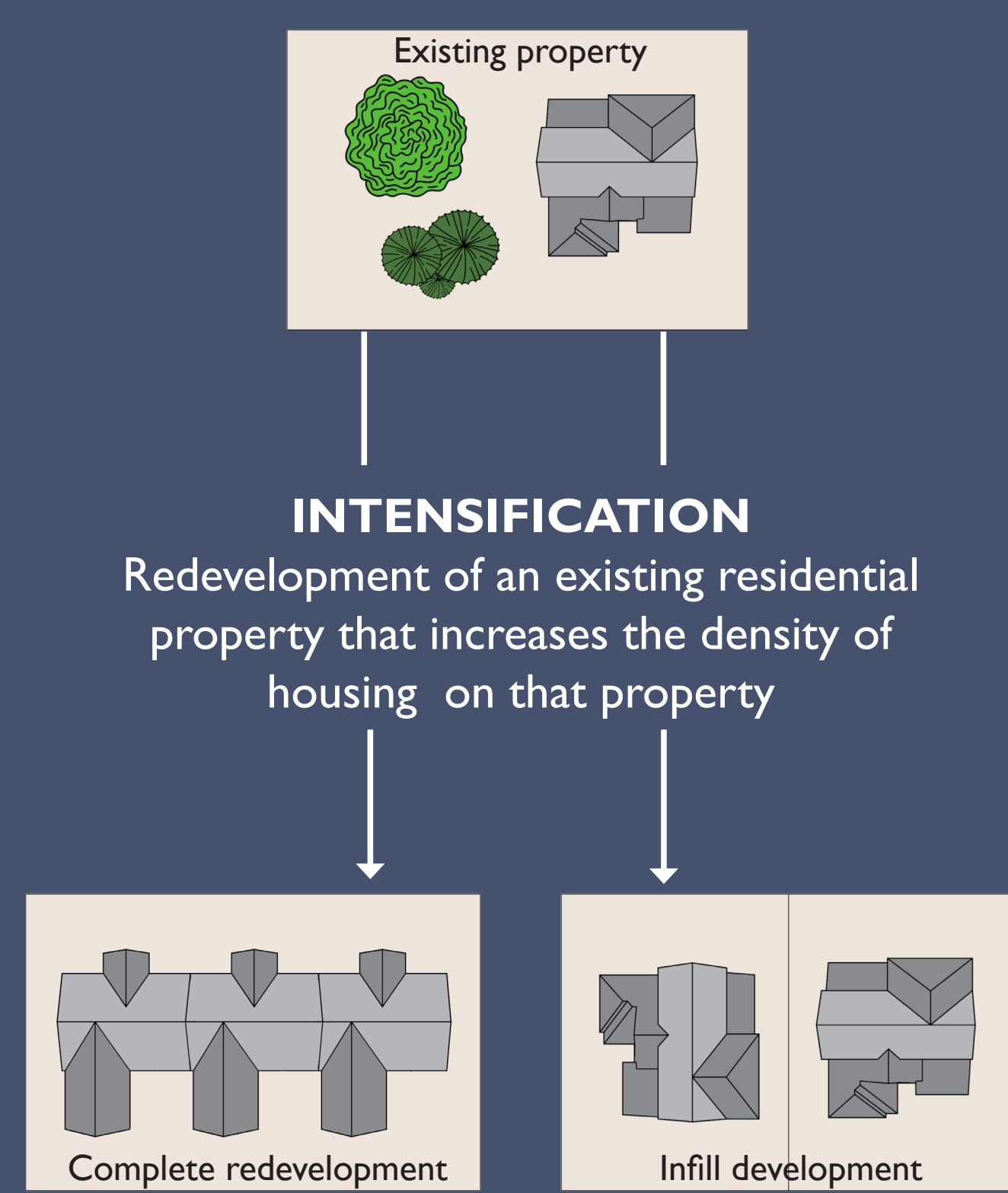
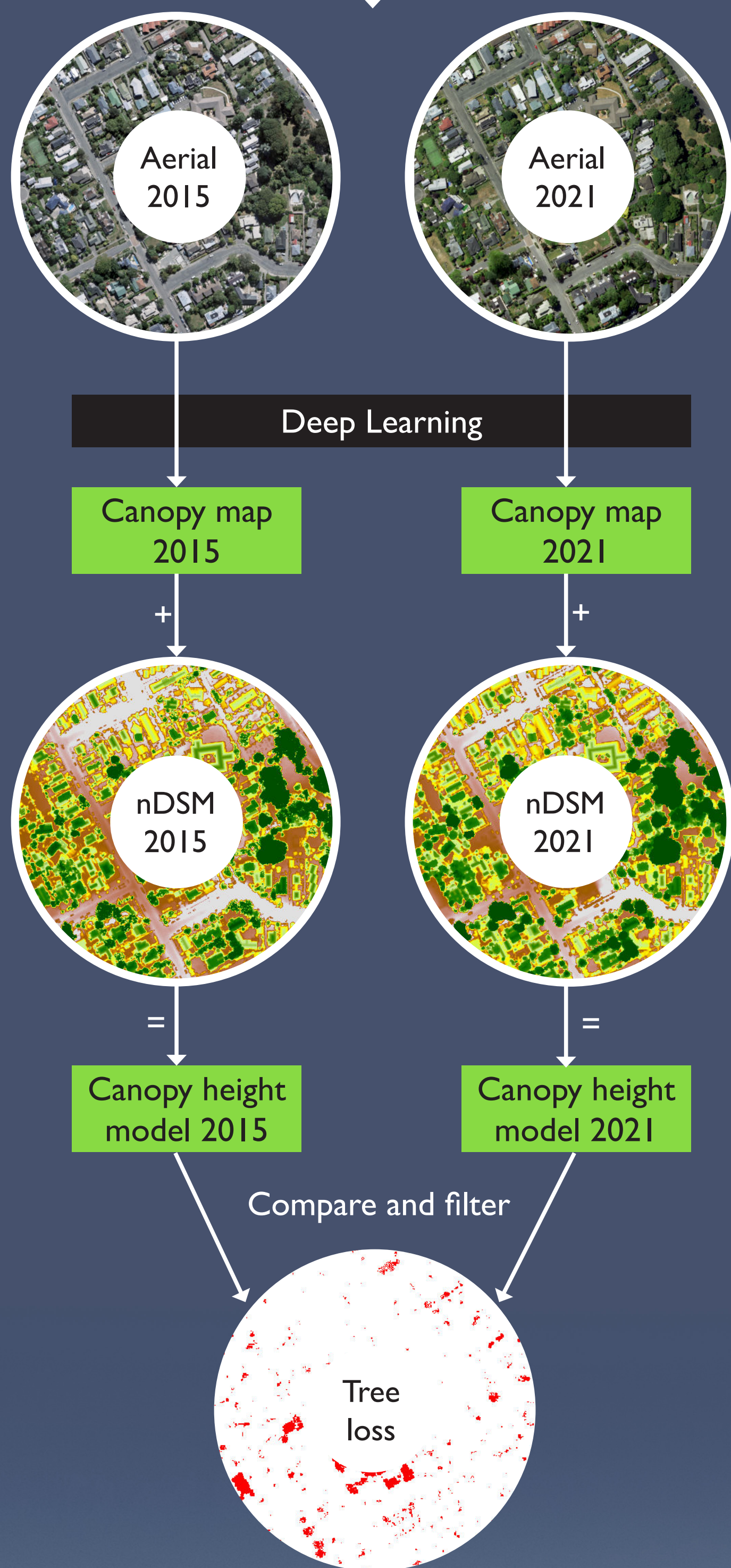
3: Planting offsets

- Has tree loss been offset by on-site planting?
- Is suburb-wide loss offset by public planting?

4: Regulation effectiveness

- Does regulatory protection prevent removal?
- Are there other more effective alternatives?

PROPOSED METHODS



Summary of steps

1. Identify location and form/density of residential intensification based on council records (e.g. consents)
2. Compare housing intensification to tree loss
3. Statistical analysis to evaluate relationship and answer research questions

Focus = sites and suburbs where housing intensification has resulted in tree loss (Output from previous stages)



Summary of steps

1. Gather data about number and species of trees planted on public/private land
 - Site visit observations
 - Council planting records
 - Aerial imagery (supplementary)
2. Calculate potential canopy gains from planted trees
3. Compare potential gains to loss to assess value of offsets

Protected tree analysis



Spatial comparison of: protected trees / intensification / tree loss

- How many protected trees were removed?
- Was removal related to housing intensification?
- Were protected sites less likely to be intensified?

Developer survey



- Influence of trees on site selection / design?
 - Influence of regulatory protection?
 - Alternatives to encourage retention?

RESEARCH IMPLICATIONS

Understand scale and extent of the issue

- Recent tree loss on private residential land
- Influence of housing intensification

Evaluate potential solutions

- Role of replanting (public and private)?
- Effectiveness of regulation?

Anticipate and plan for the future

- How to achieve urban tree objectives with continued housing intensification