

# 历史的印记不会轻易磨灭

——基于指标聚类算法的空间形态分区技术及其在设计中的应用

讲演人：曹俊

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——基于指标聚类算法的空间形态分区技术及其在设计中的应用

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# 设计中对城市空间形态的分析

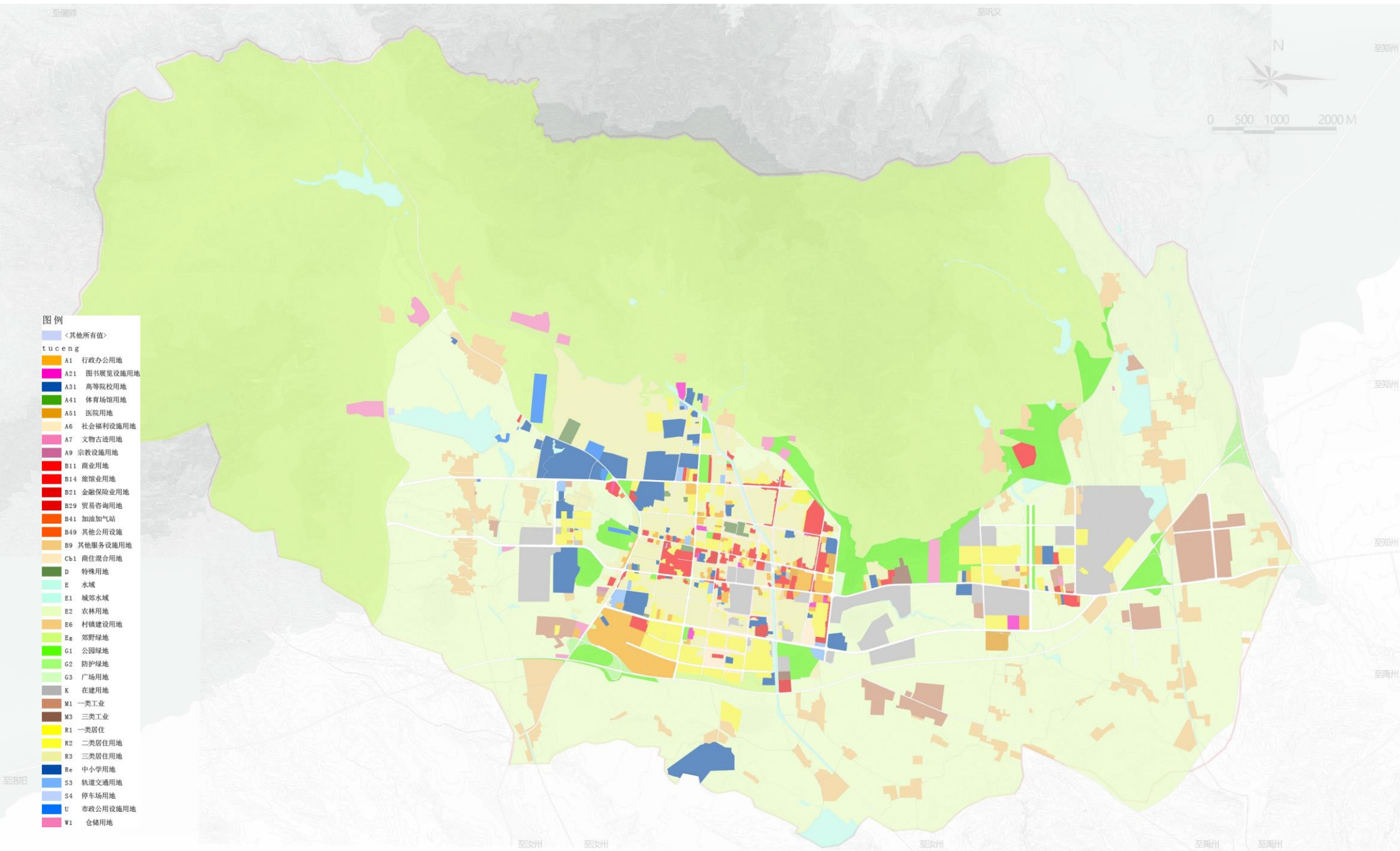


# 三维建模

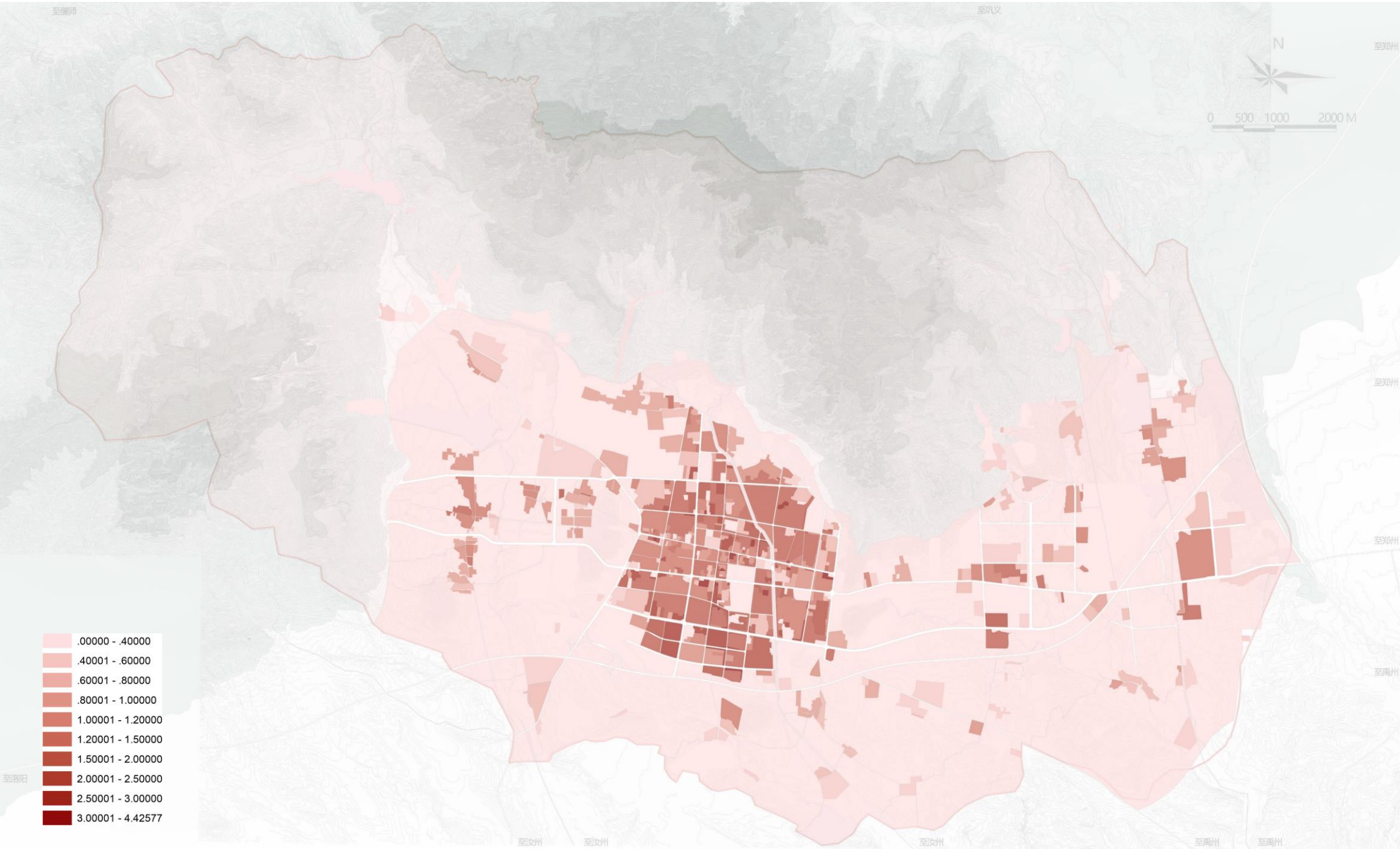




# 用地

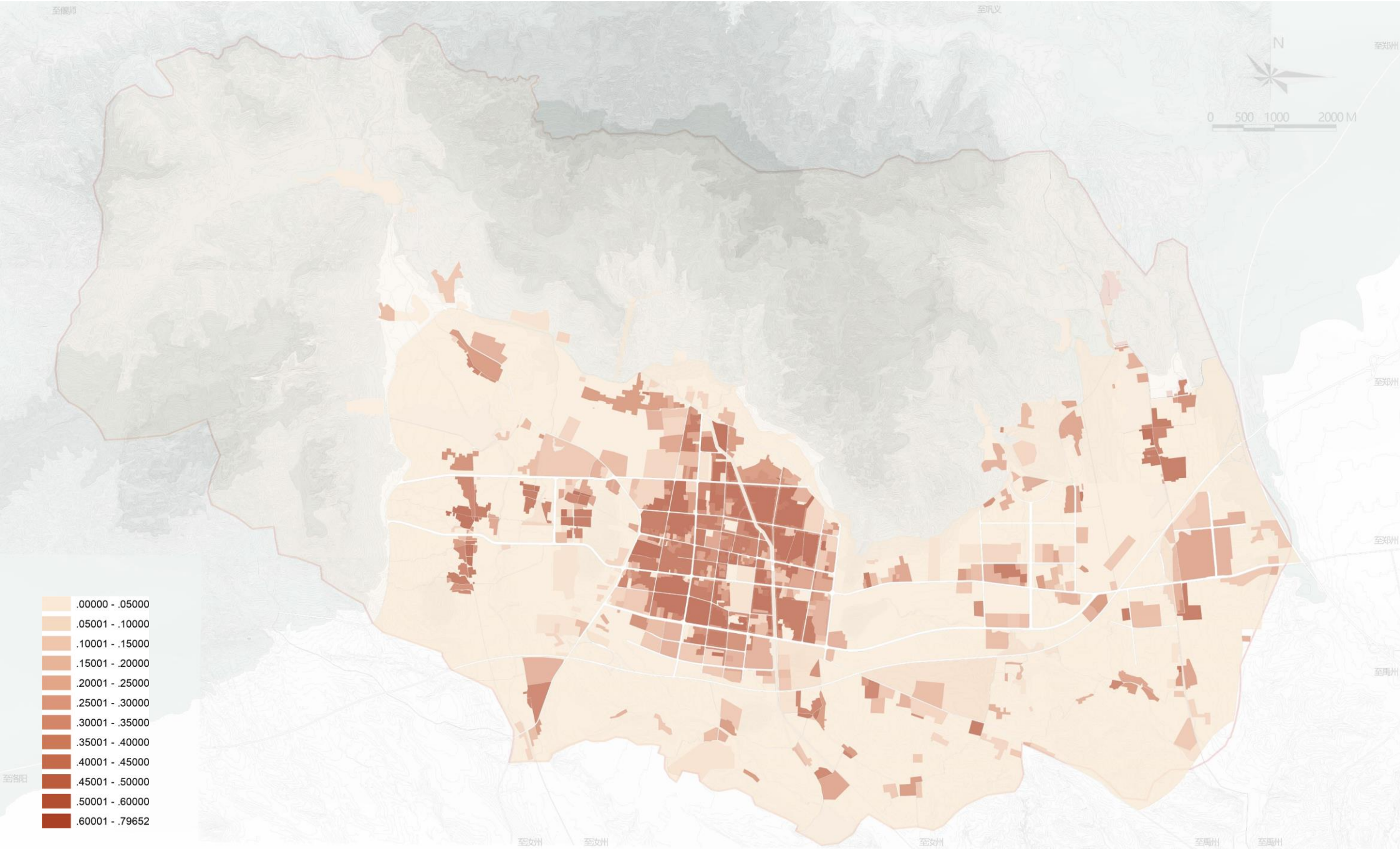


# 容积率



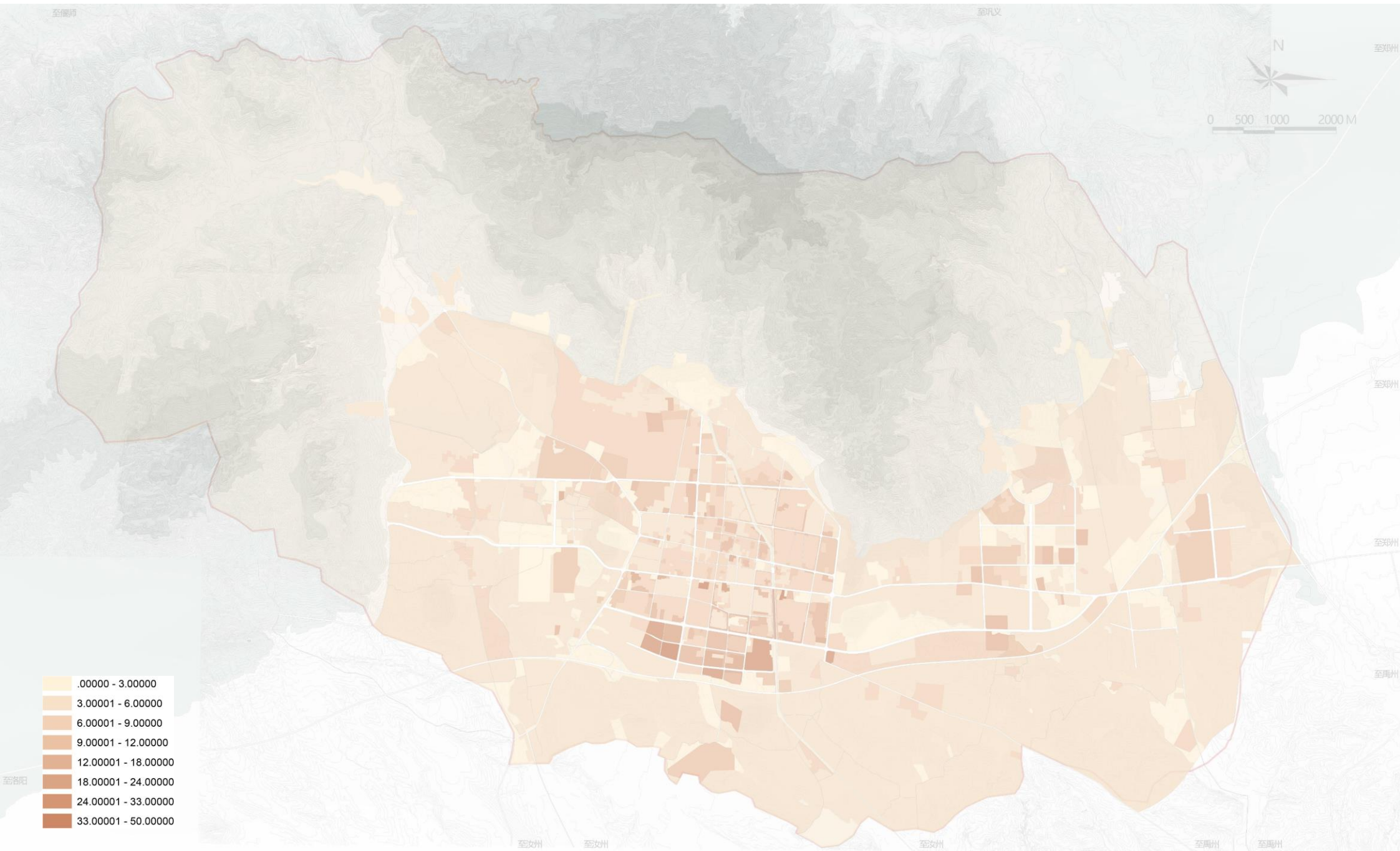


# 密度





# 平均高度

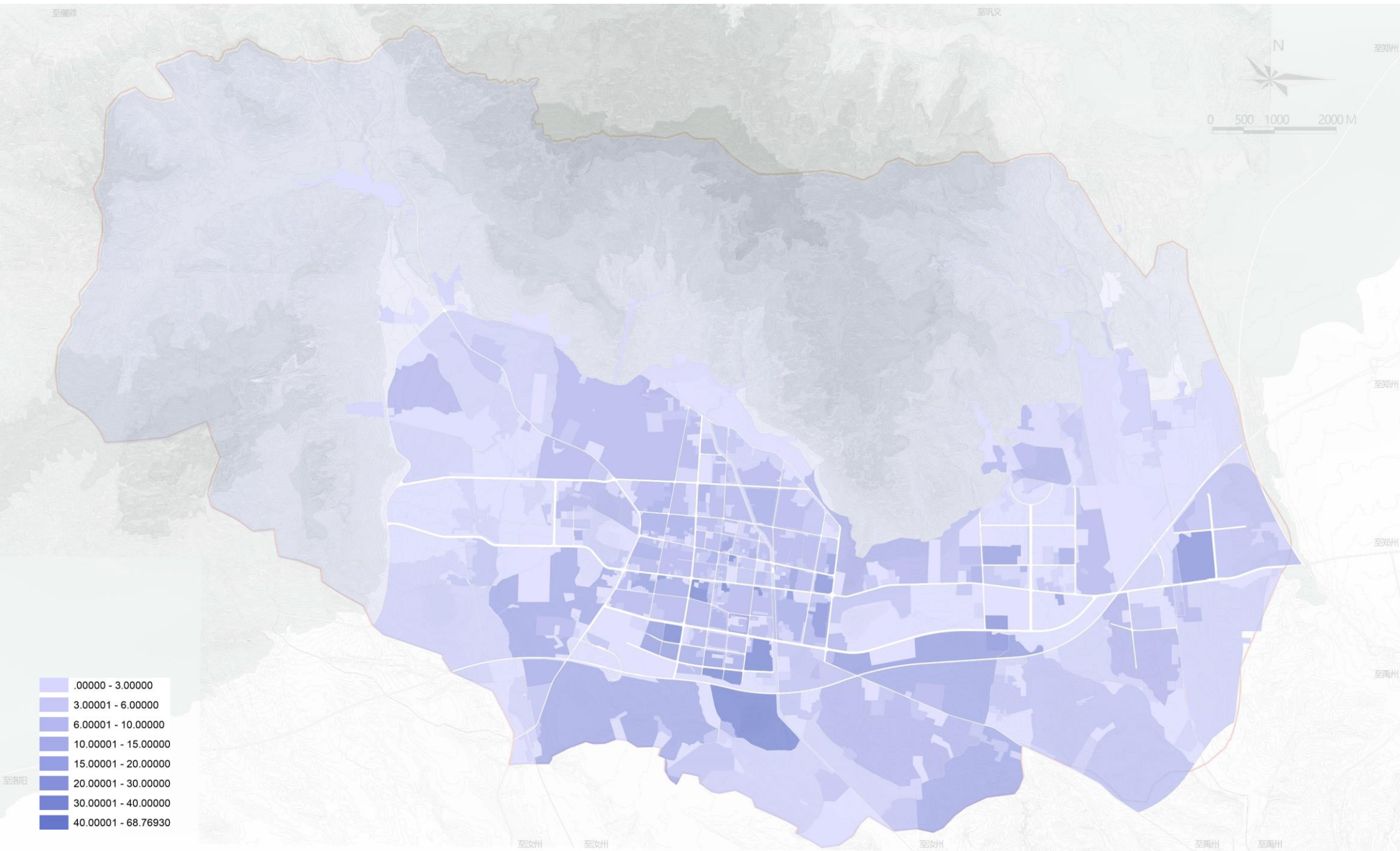


# 最高高度



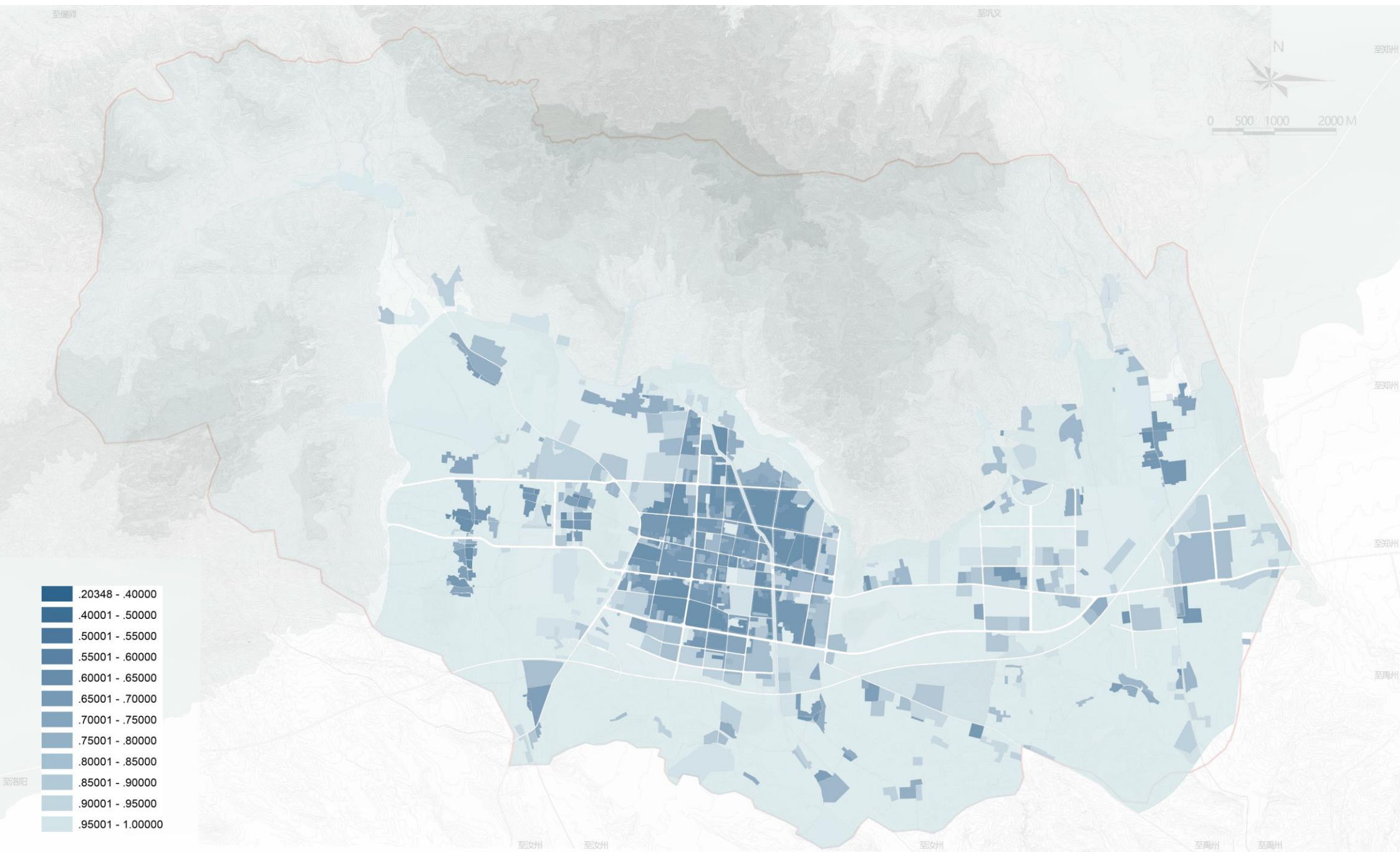


# 错落度





# 开敞度



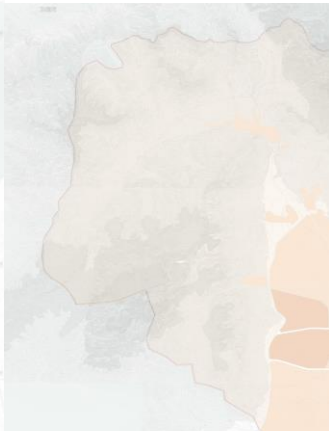
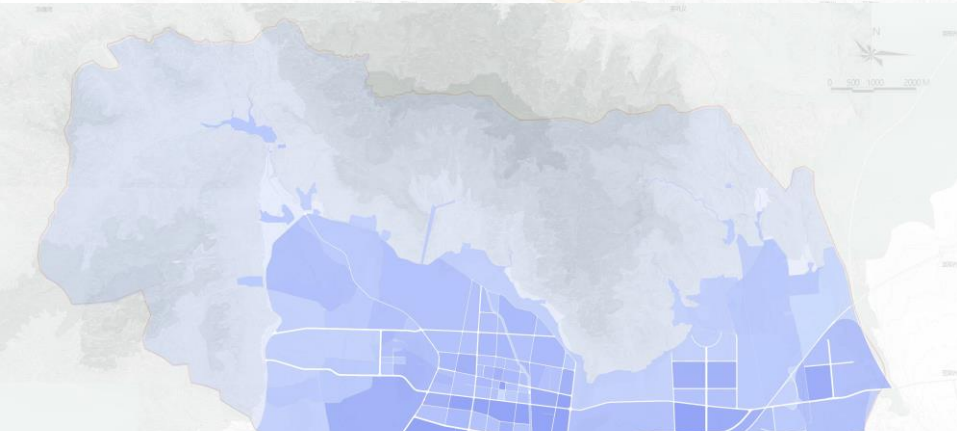
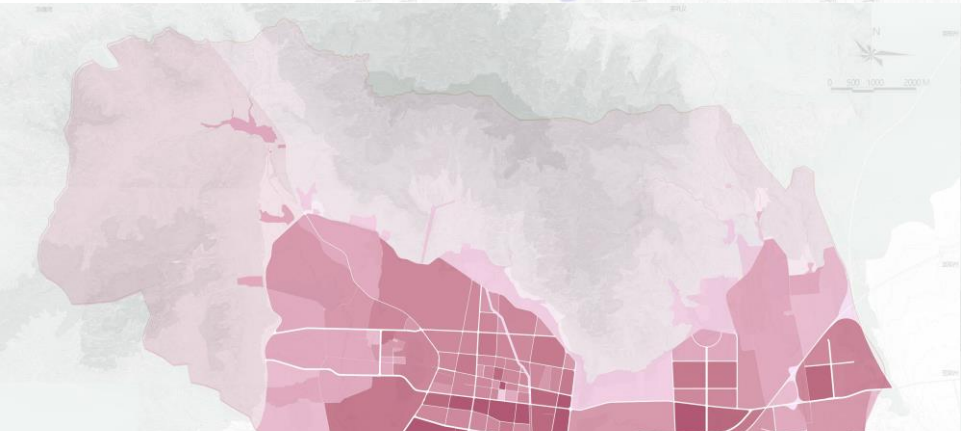
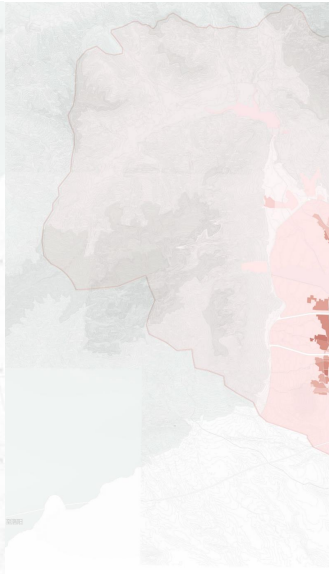
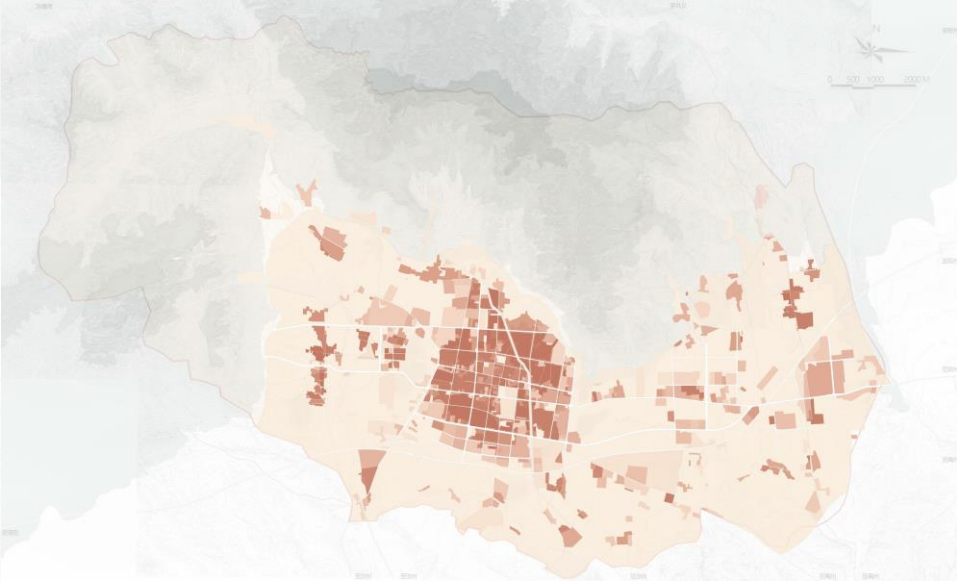


困惑



# 困惑

- 有时候出了很多图，分析了半天，不知道在分析什么



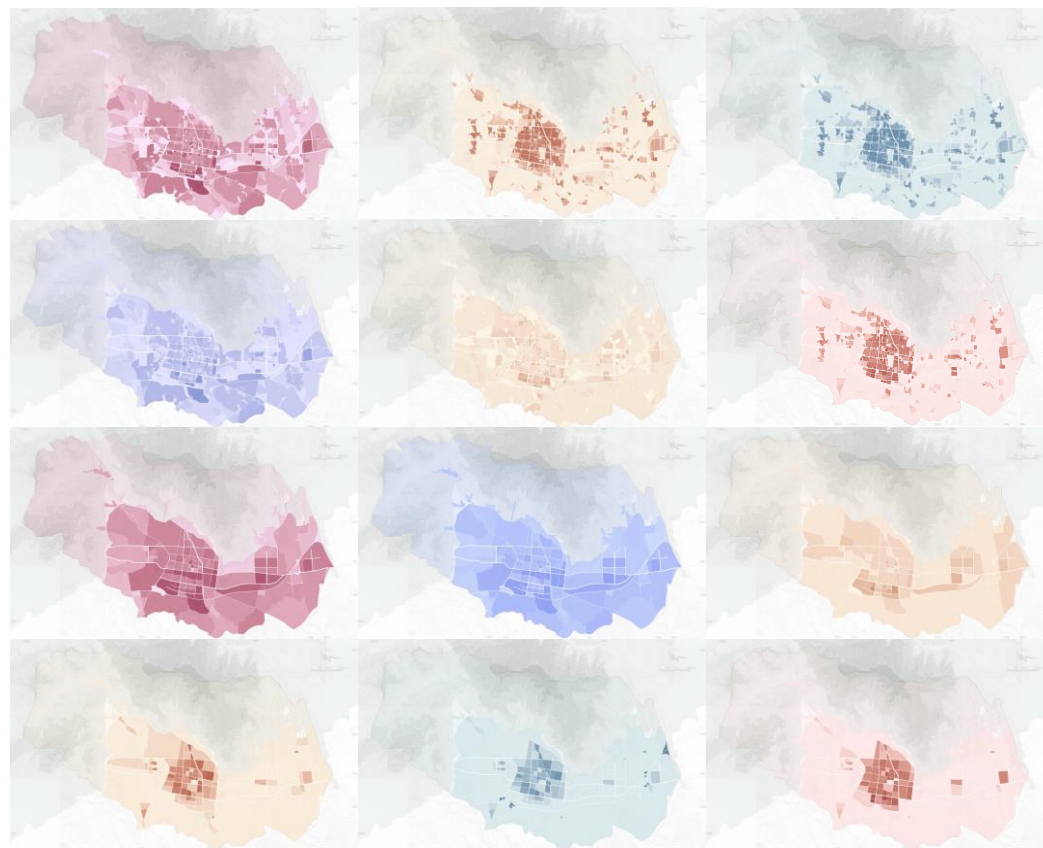
# 通过单维度指标进行形态分区

- 容积率，区分空间上建设强度的大、小
- 密度，区分空间上的疏、密
- 高度，区分空间上的高、低
- 最高高度
- 平均高度
- 错落度
- 开敞度
- 用地面积
- .....



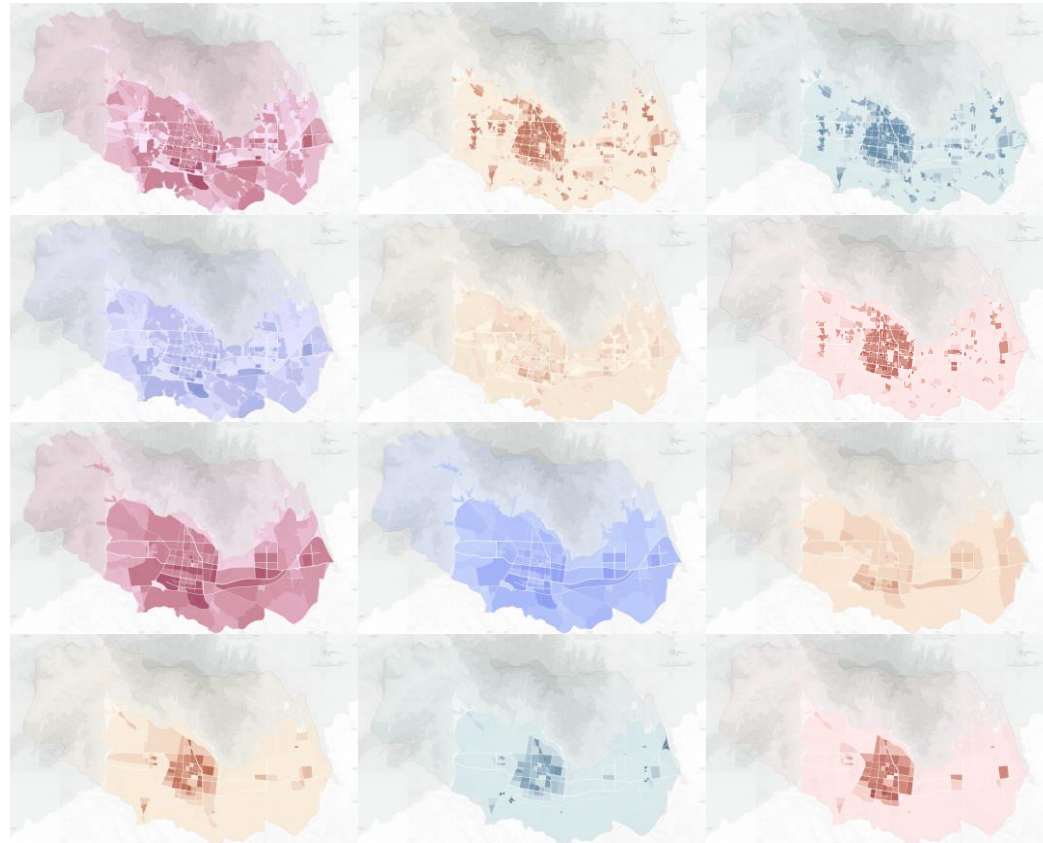
# 局限

- 对于一块用地而言，其形态是一个非常复杂的系统、是一种综合的呈现，任何一个形态指标其实只是表征其形态的一个方面；而指标也是列举不完的



# 局限

- 对于任何一个指标而言，对其进行空间形态分区的拐点值如何定义？颜色具有迷惑性



# 基于指标聚类算法的空间形态 分区技术



# 空间形态分区

- 形态区别于形态
- 综合地
- 输入形态，输出分区

# 基于指标聚类算法的空间形态分区技术

## 输入

- 用地面积
- 容积率
- 密度
- 最高高度
- 平均高度
- 错落度
- 开敞度
- .....

## 中间过程算法

## 输出

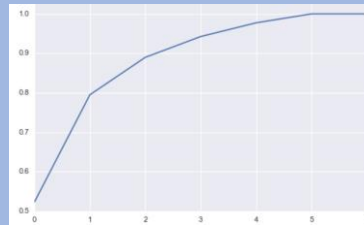
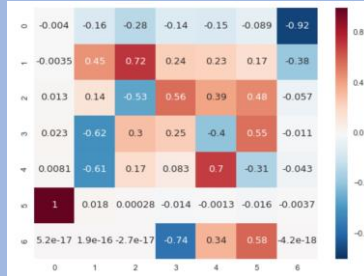
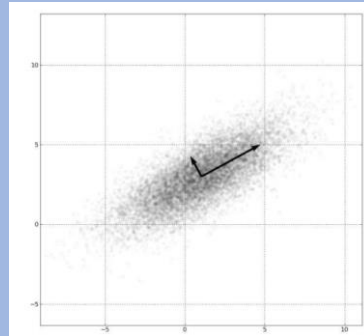
- 形态之间相互区别的分区结果

# 基于指标聚类算法的空间形态分区技术

## 输入

- 矢量空间模型 (自动进行多种指标计算)

## 中间过程算法



## 输出

- 类别
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- .....

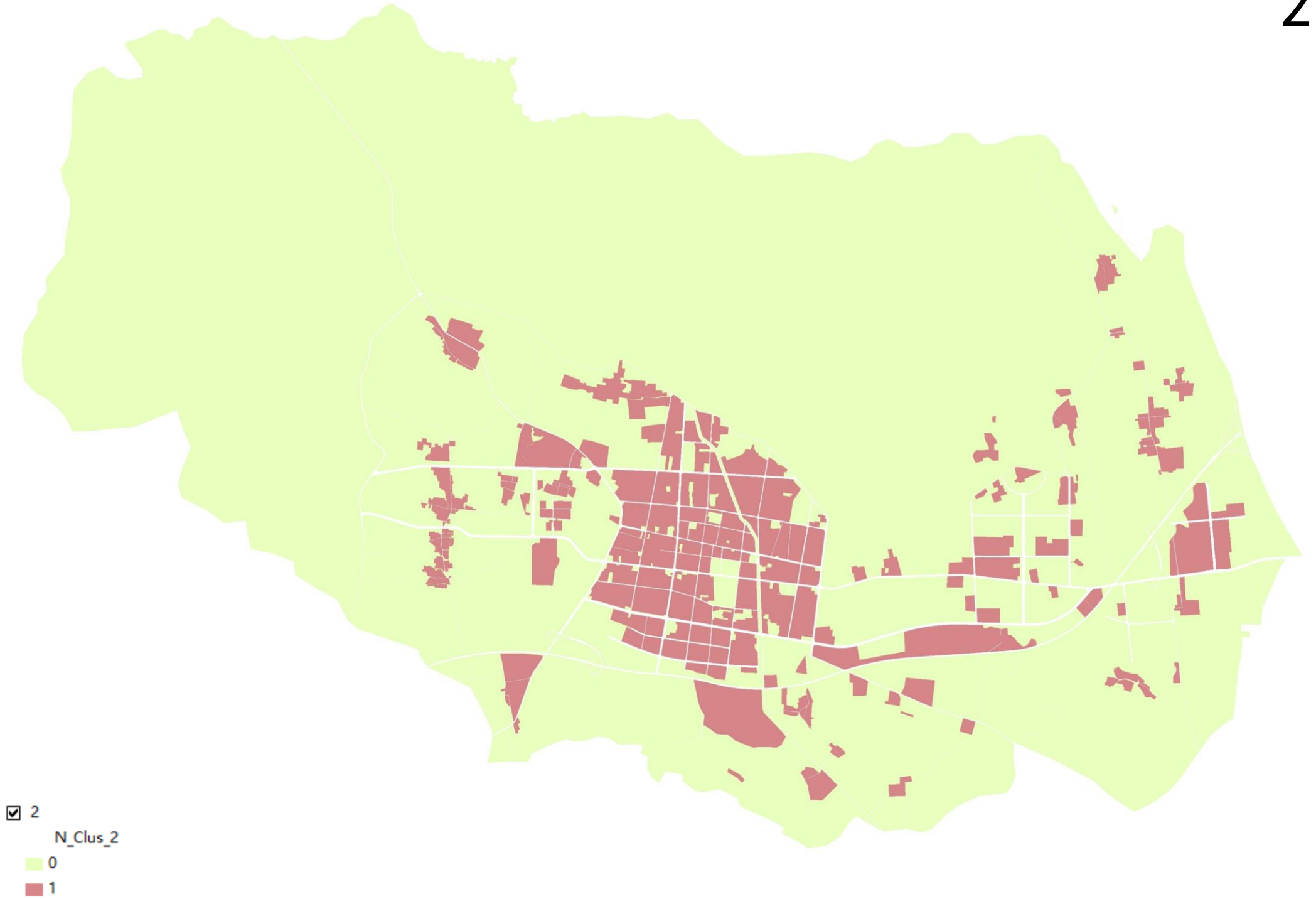


# 登封实验

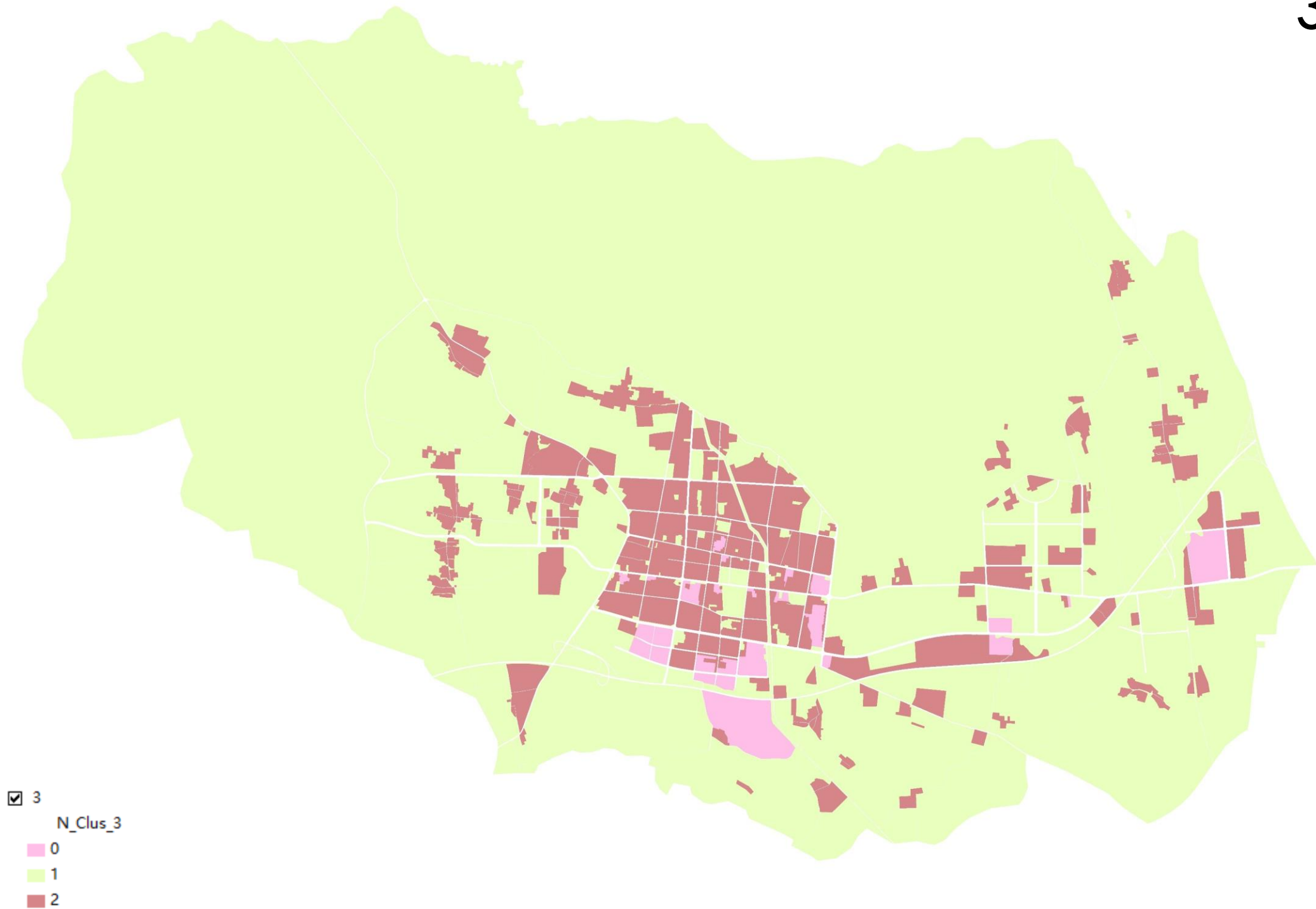
# 实验对象

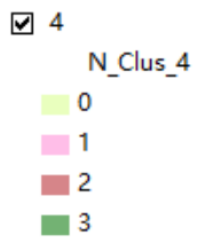
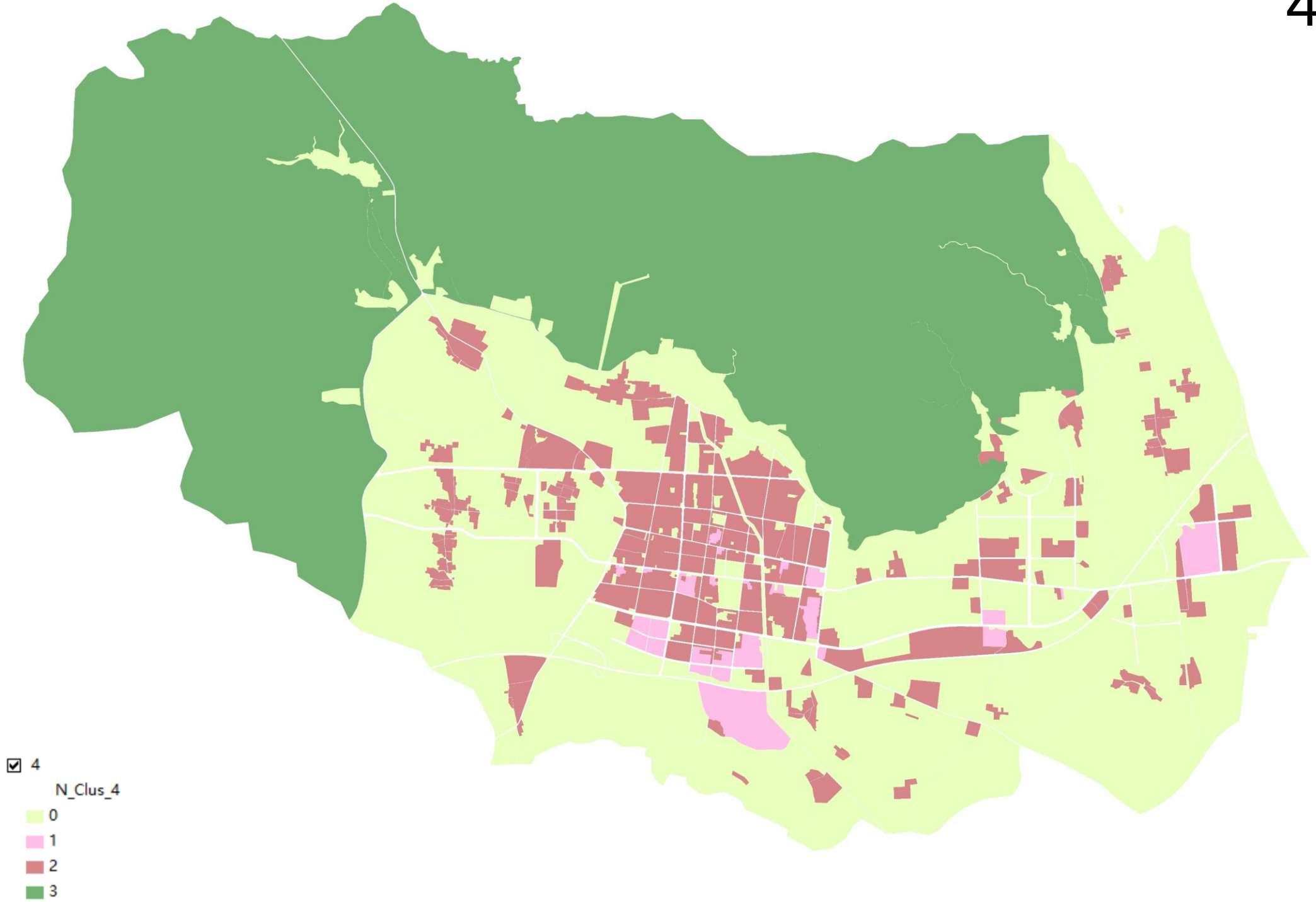


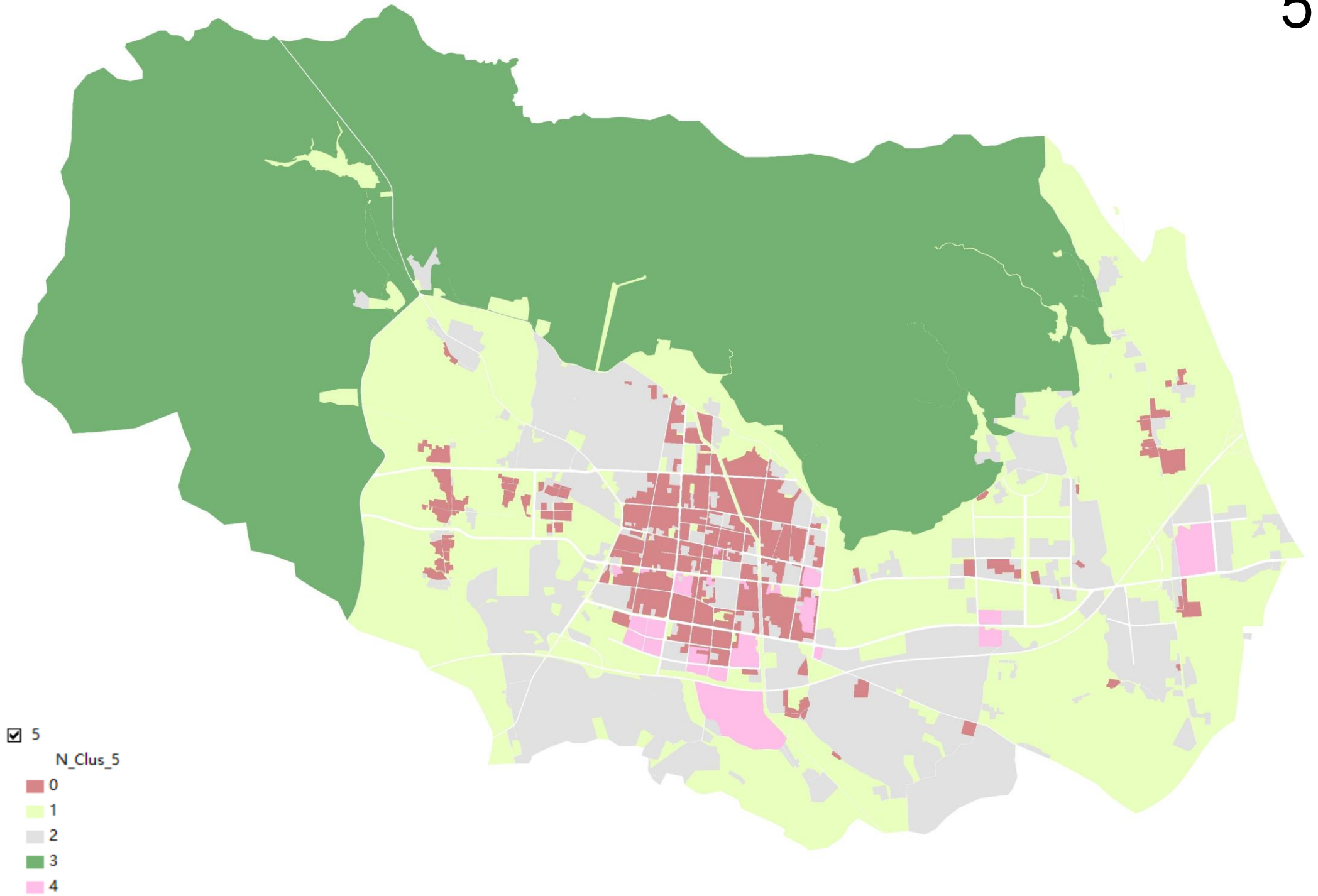


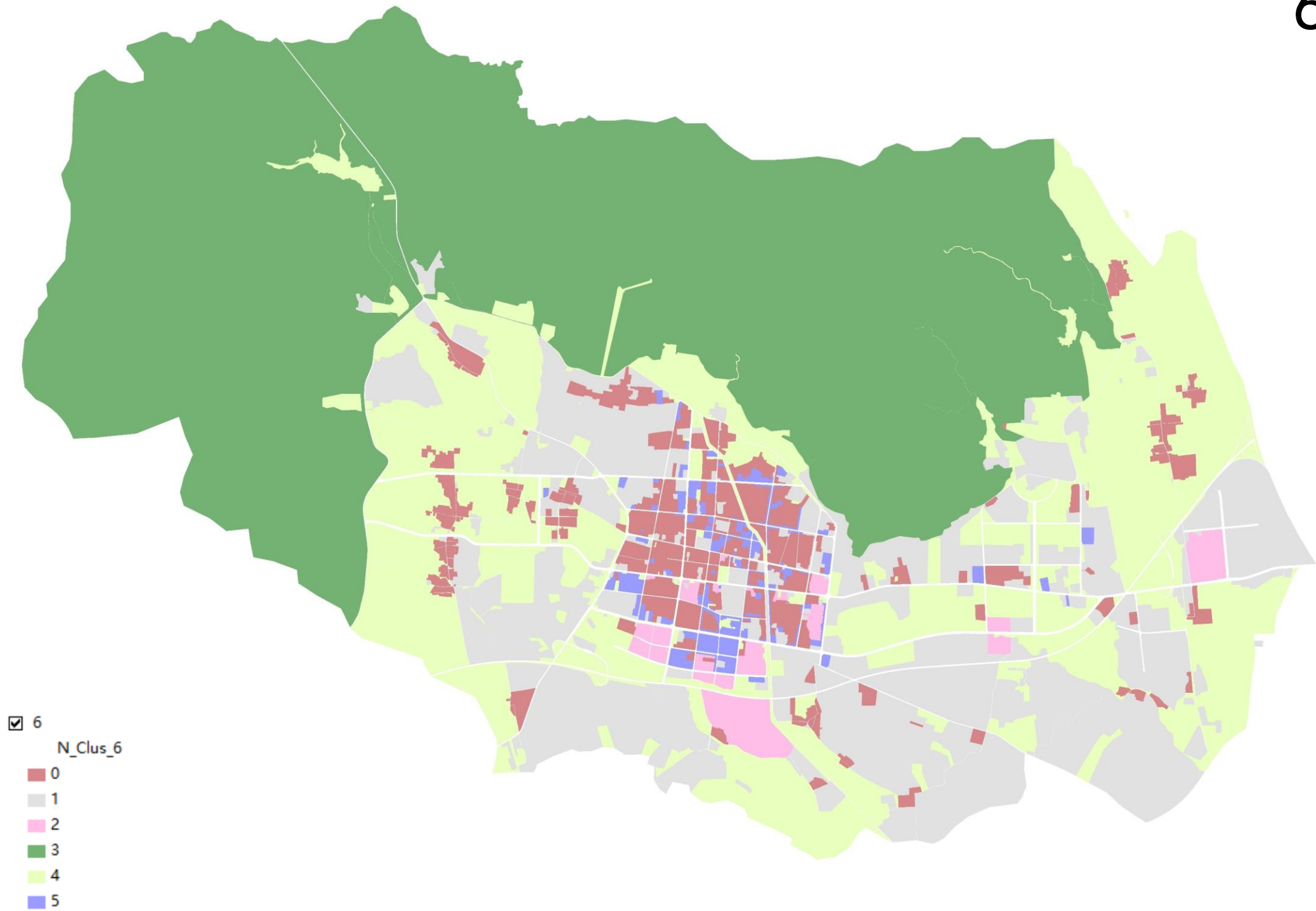




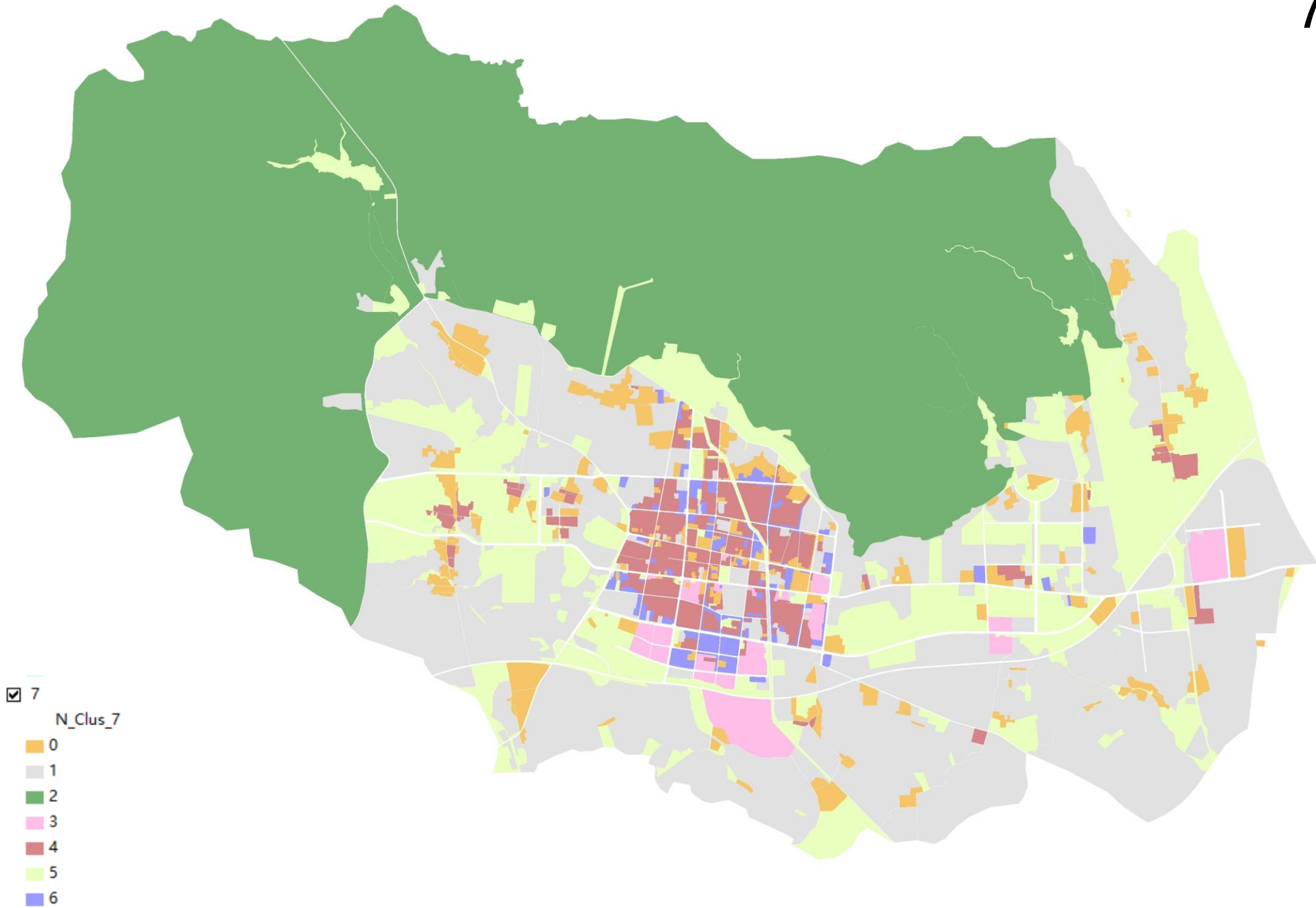


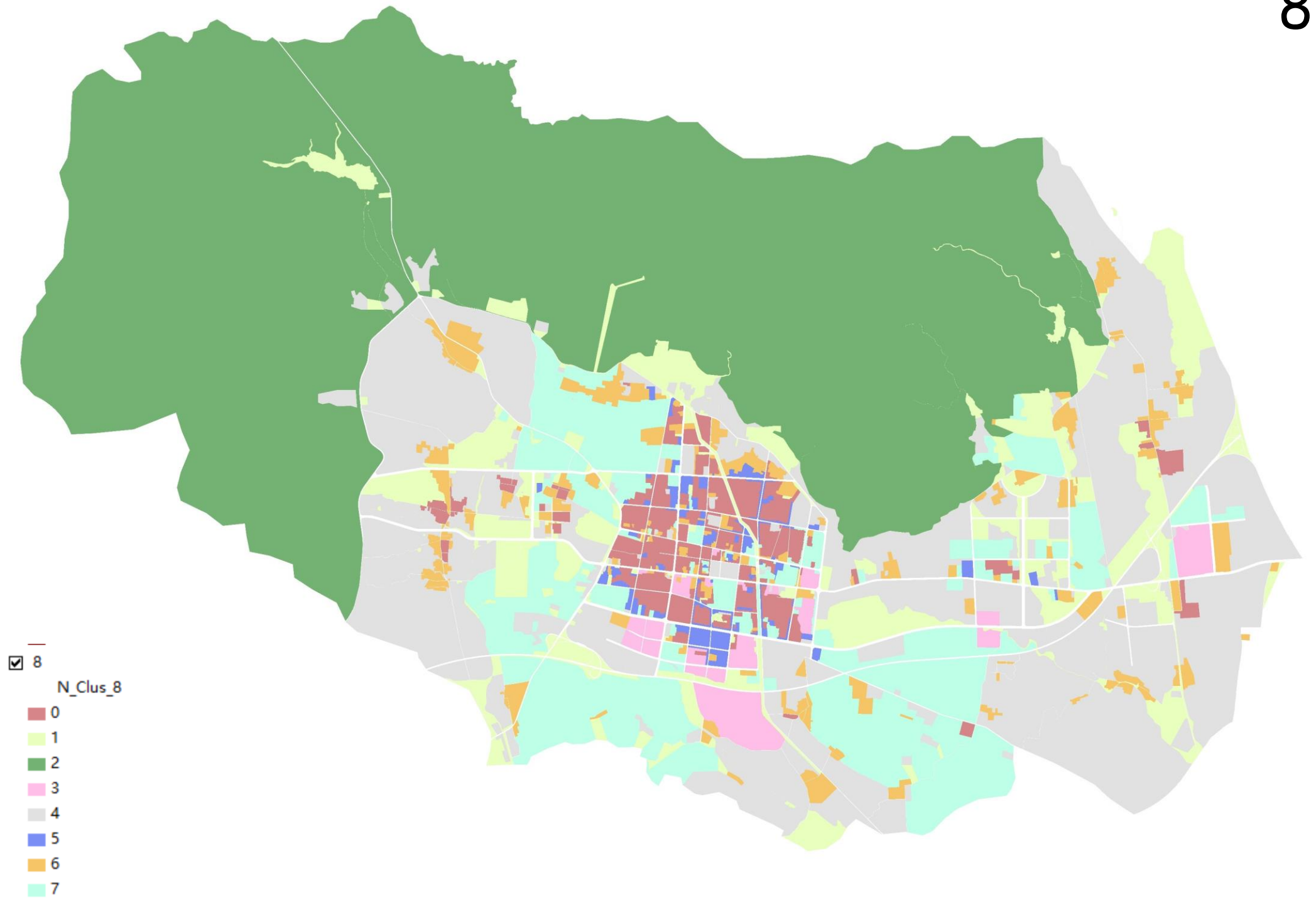


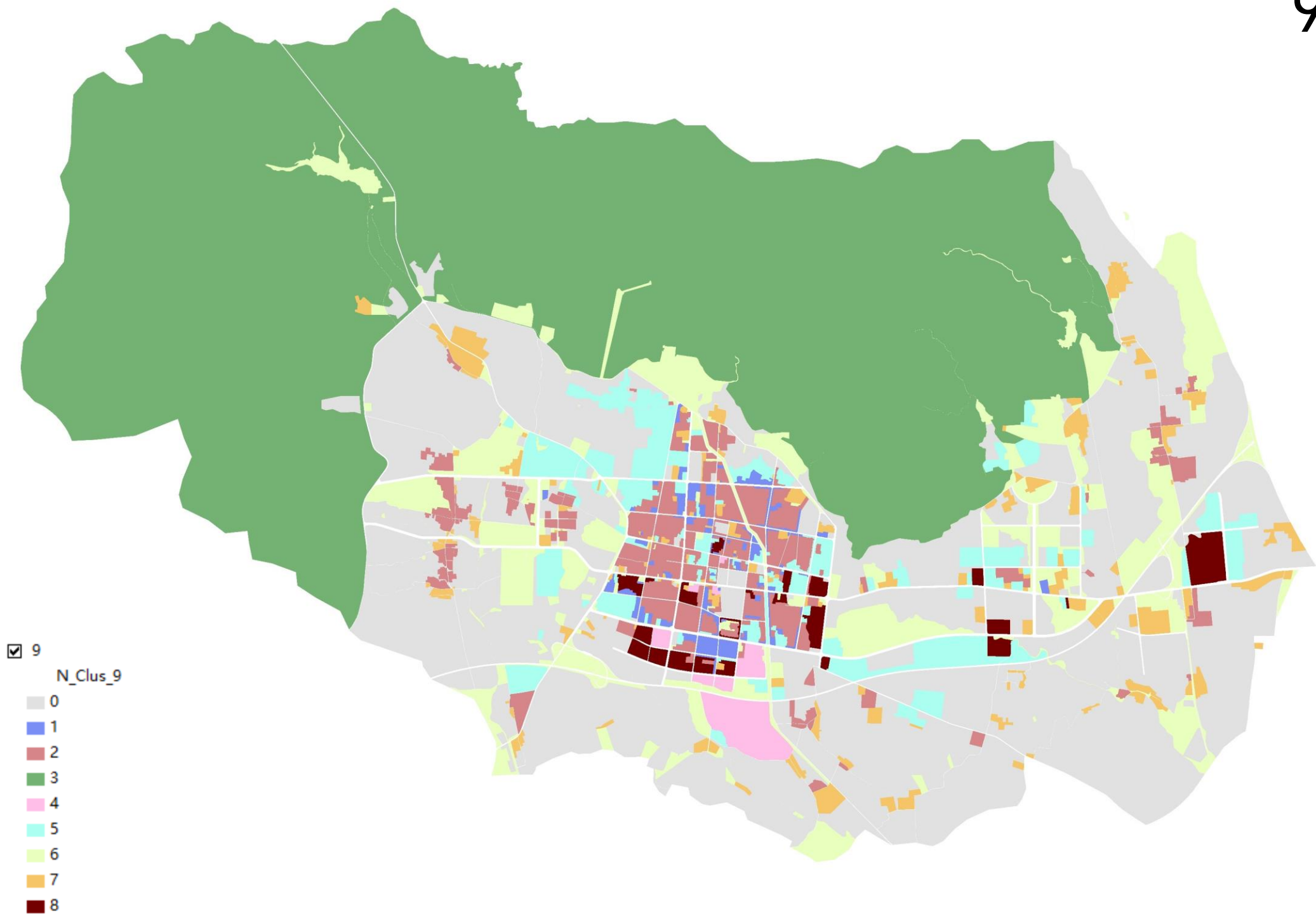


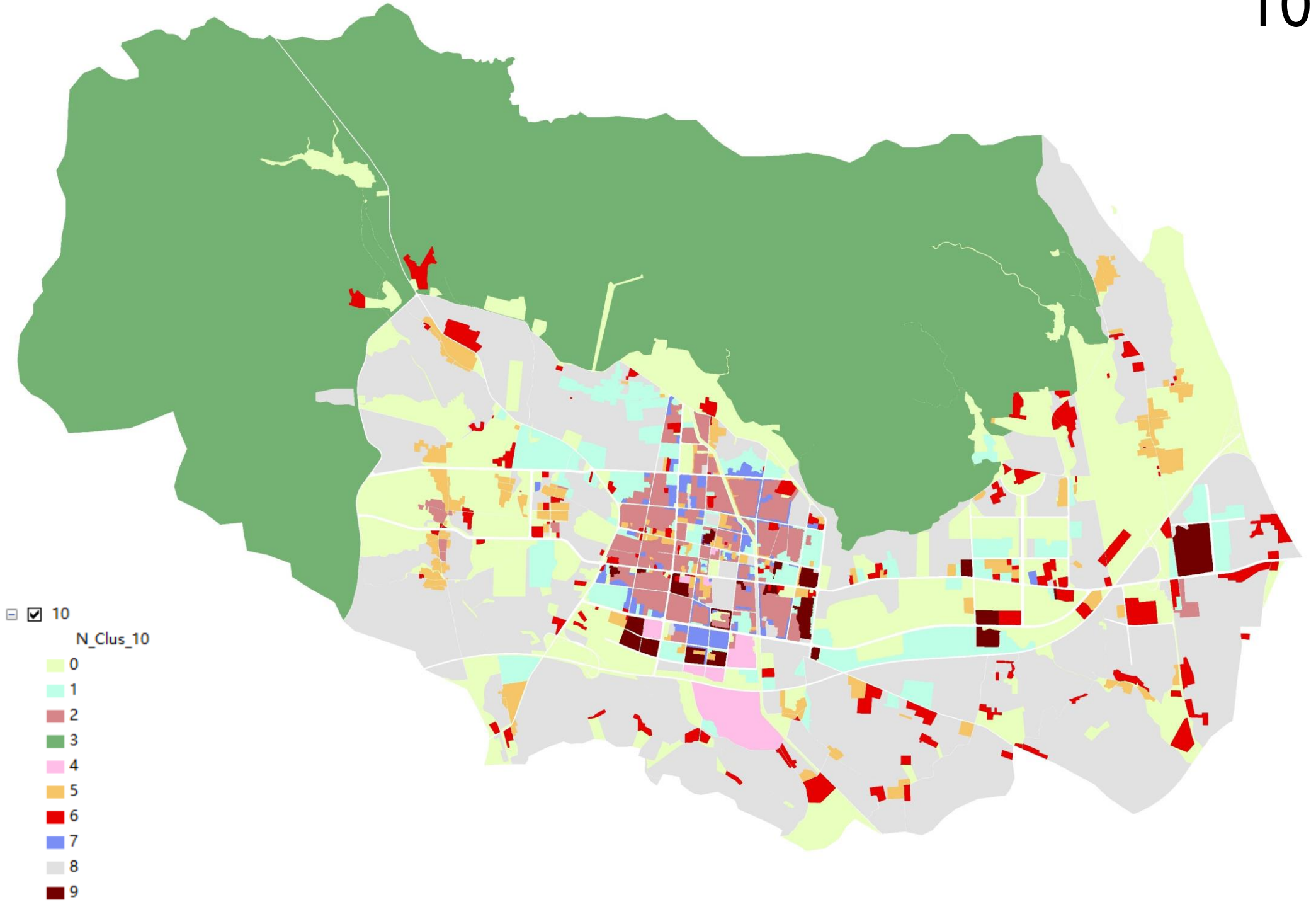




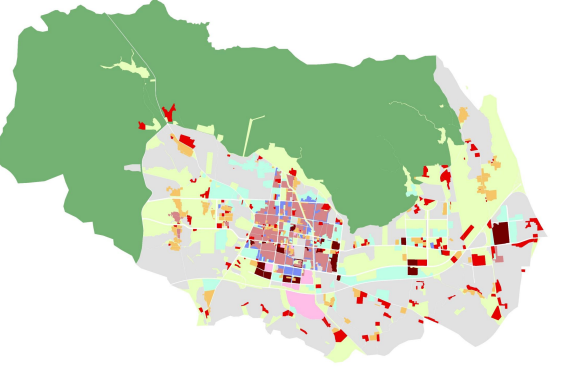
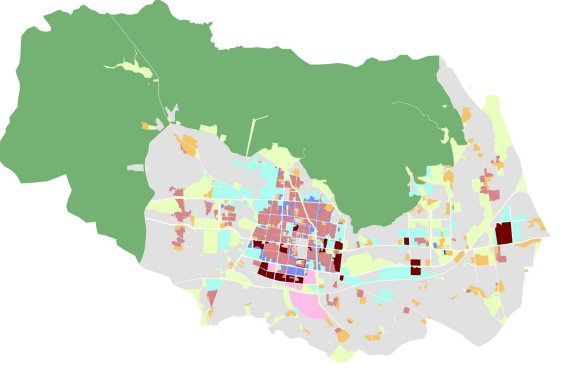
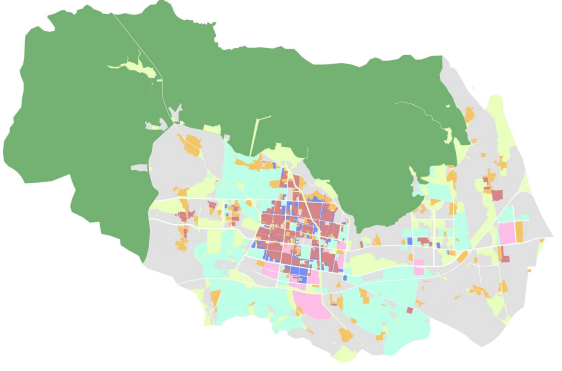
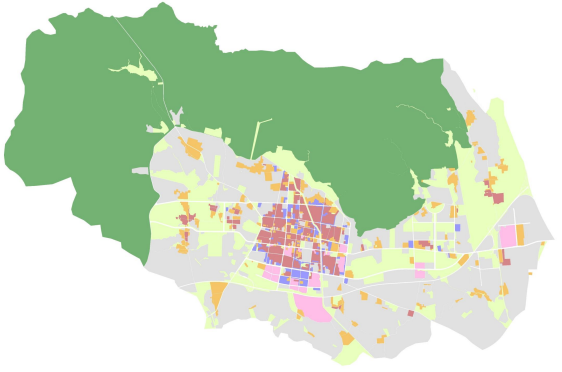
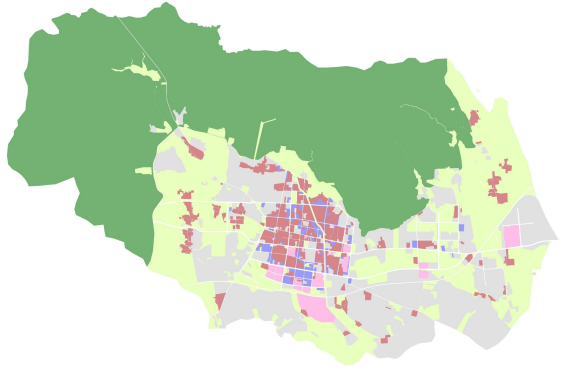
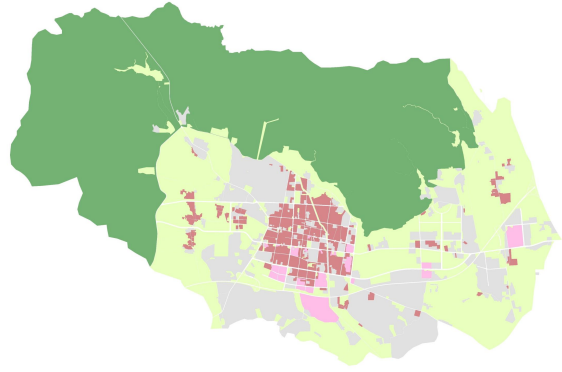
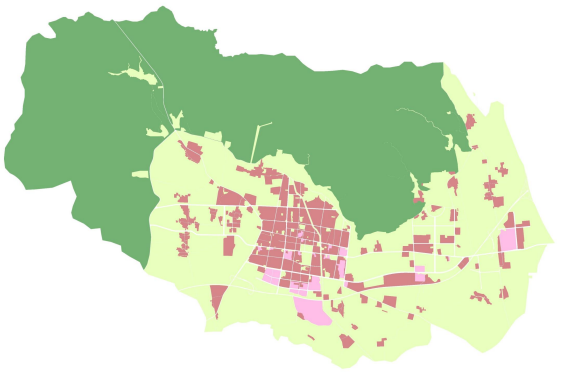
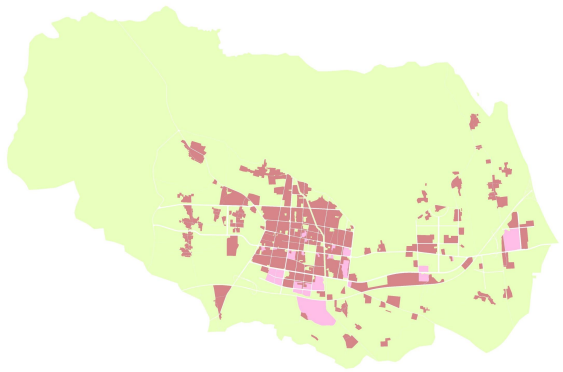
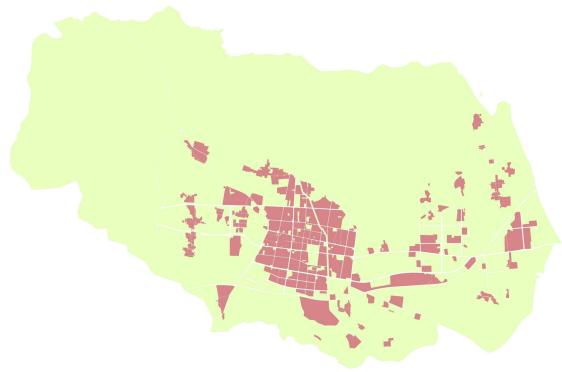


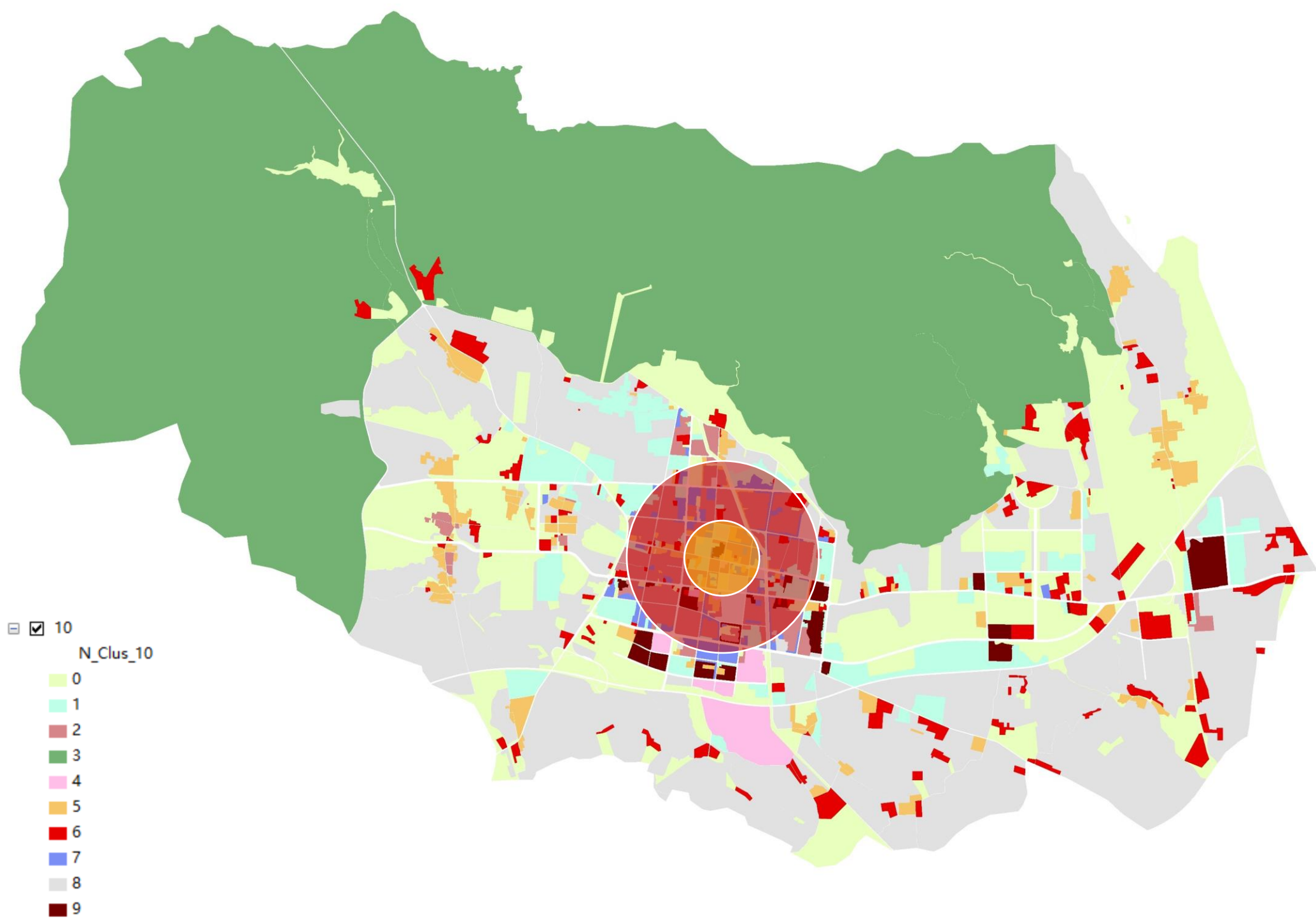








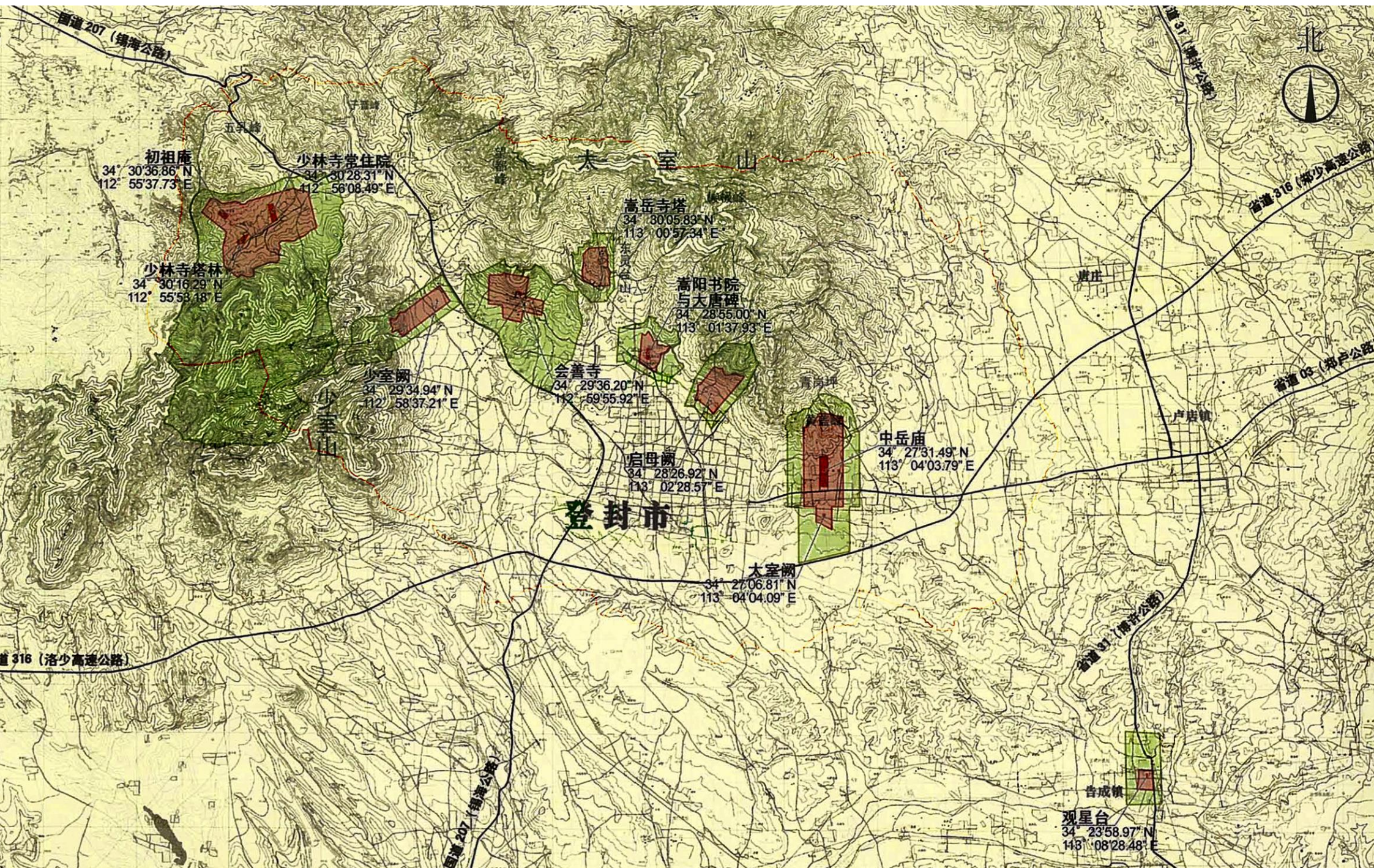




# 数据增强设计



# 世界文化遗产：登封天地之中历史建筑群





# 登封城







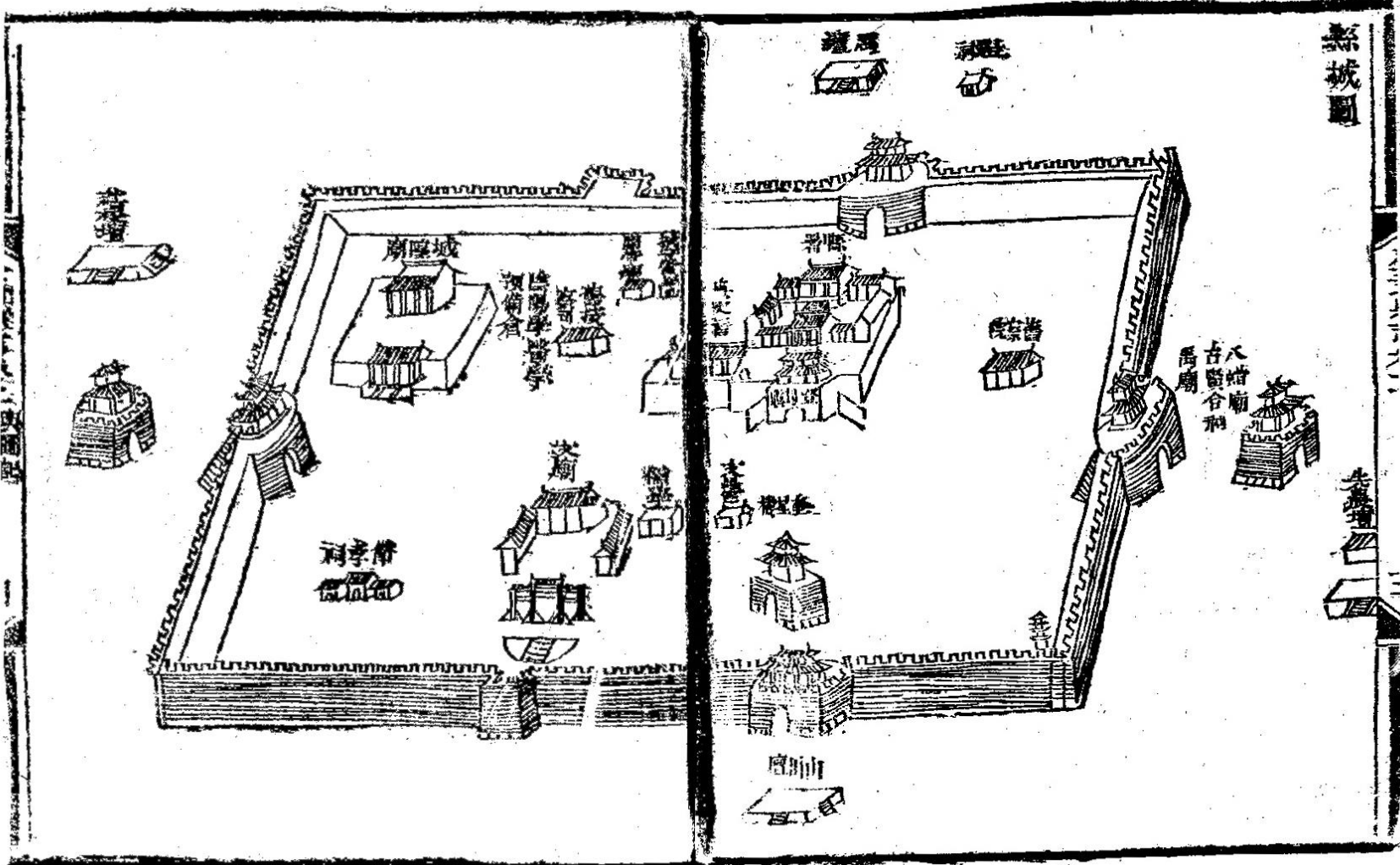




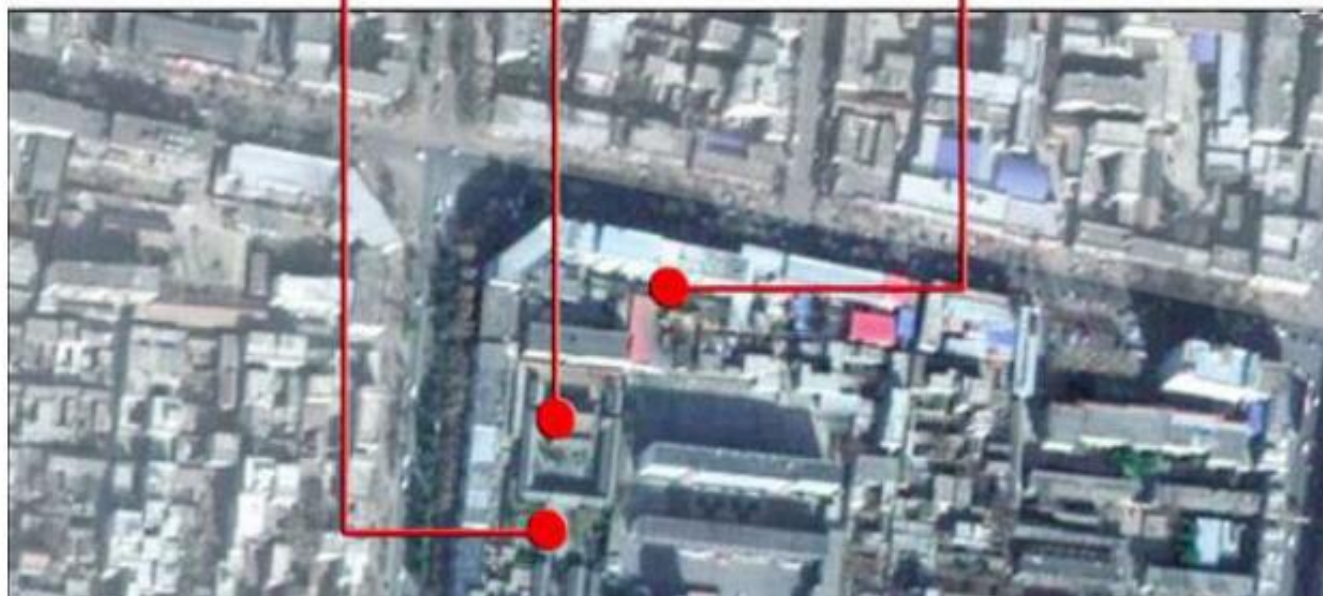




# 古登封城



# 遗存

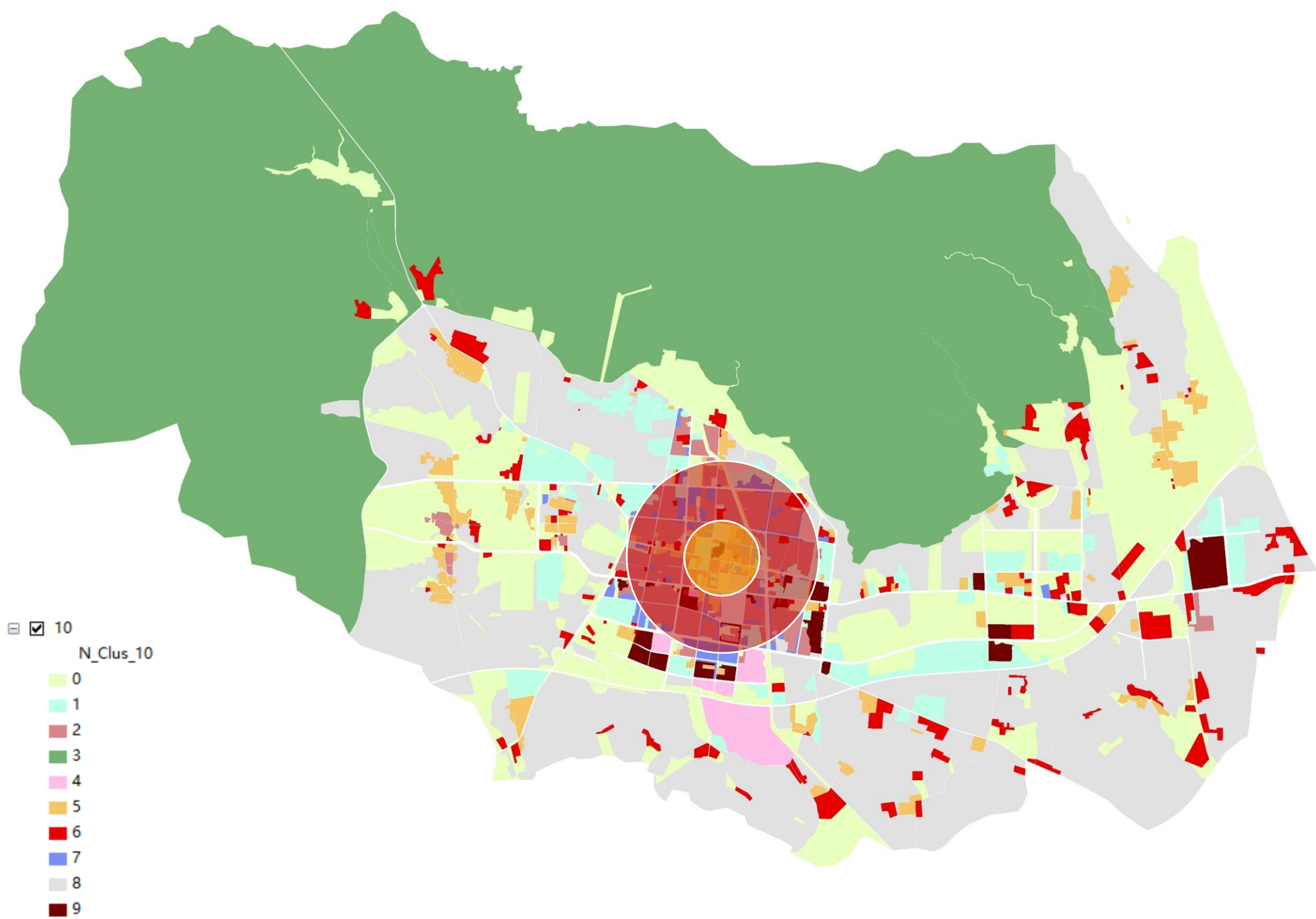




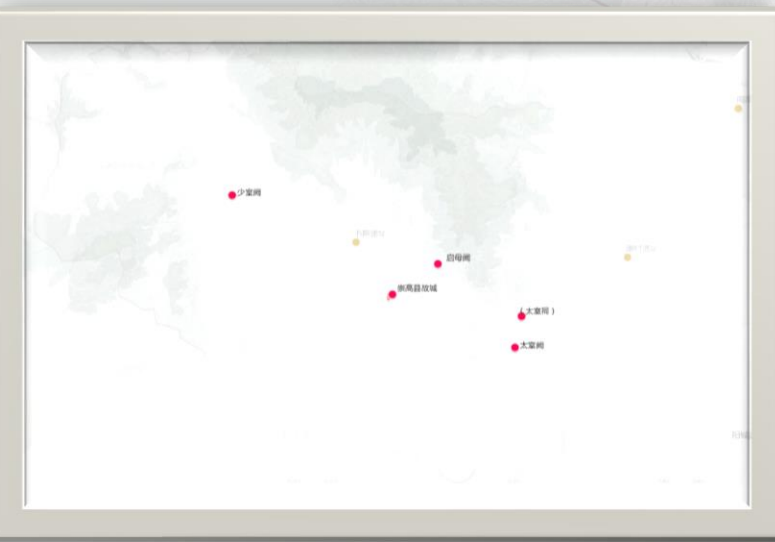
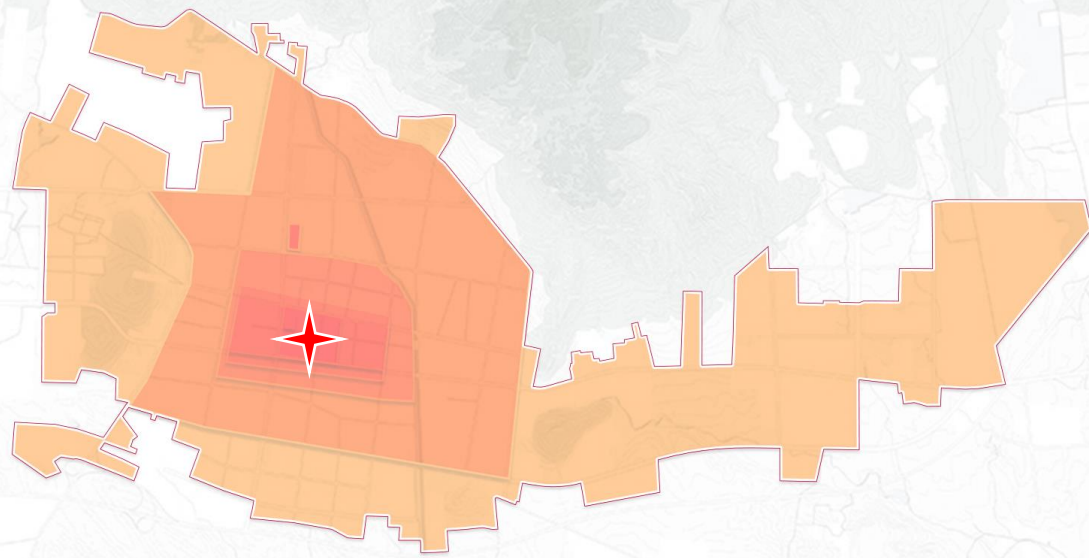
怎么设计？











至德州

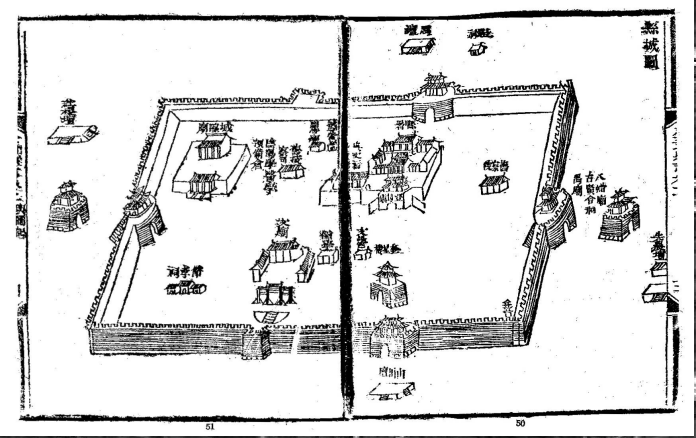
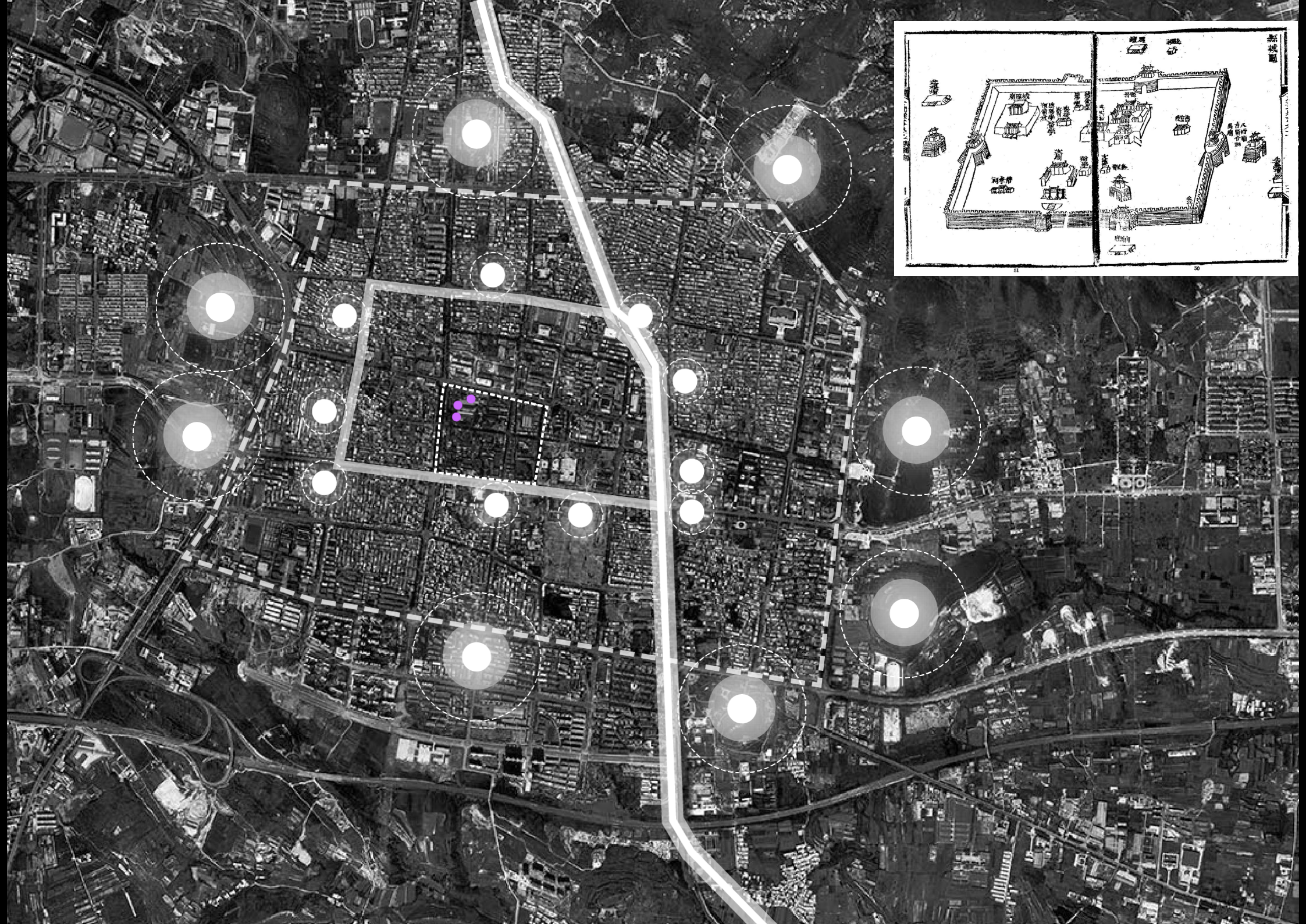
至德州

至德州

至德州

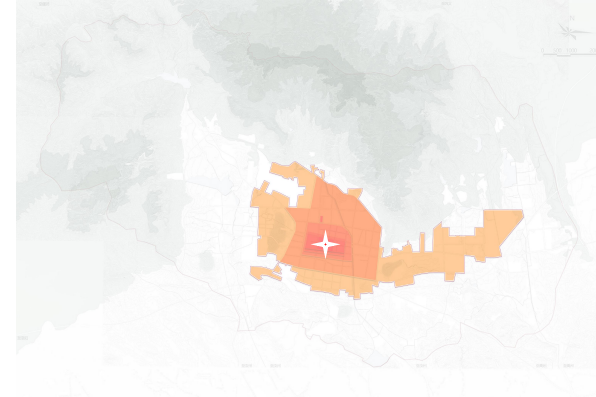
至德州







# 总结



- 一块用地的空间形态是一个复杂的系统和综合的呈现，通常情况下通过容积率、高度、密度等指标对其进行描述均可视为单维度指标下的空间形态分区。通过指标聚类算法，可以在输入栏输入描述空间形态的各组指标，在输出栏控制空间形态分区的类别数量，形成一种基于指标聚类算法的空间形态分区技术。
- 运用该技术对于城市空间形态进行聚类分区，发现随着类别数量的增多，在老城范围形成了趋于稳定的圈层结构，其形状同城市历史演替进程中的边界痕迹有较大的相似性。这种相似性一方面为该地区的设计提供了线索和依据；另一方面也触发了“历史的印记不会轻易磨灭”的猜想，当然，此猜想有待于更加严谨地论证和更多城市案例的检验。

