

Supporting information

The Governance and Optimization of Urban Flooding in Dense Urban Areas Utilizing Deep Tunnel Drainage Systems: A Case Study of Guangzhou, China

Jingyi Sun ^{1,2*}, Xuewei Wu ^{3*}, Guanghua Wang ², Junguo He ¹, Wentao Li ²

Table S1 The parameters of hydrological calculation

| Drainage basin area | 12.47 km ² | Duration (h) | Design Storm | Cv | Cs/Cv |
|------------------------|-----------------------|--------------|--------------|------|-------|
| | | | Value (mm) | | |
| Design frequency | 2% | 1 | 61.00 | 0.38 | 3.5 |
| River length | 6.5 | 6 | 100.00 | 0.45 | 3.5 |
| Gradient | 0.00284 | 24 | 132.00 | 0.43 | 3.5 |
| | | 72 | 177.00 | 0.43 | 3.5 |

Table S2 HEC Model parameter adjustment range table

| Parameter | s | Default | Values (L/Cap./d) | | | | | | Monitoring point number | | |
|-----------|---|---------|-------------------|-----------|---------|---------|-------|-----------|-------------------------|---------|--|
| | | | Range | | A1 | A2 | A3 | A4 | A5 | A6 | |
| | | | Min | Max | | | | | | | |
| Sunny | WWG | 400 | 360 | 800 | 36 0 | 39 0 | 800 | 680 | 27 0 | 53 0 | |
| Rainn | Runoff Coefficien t y | 0.63 | 0.25 | 1.00 | | | 0.46- | 0.71 | | | |
| | Manning's Roughnes s Coefficien t n | 0.015 | 0.01 0 | 0.02 0 | | | 0.013 | 0.01 8 | | | |