



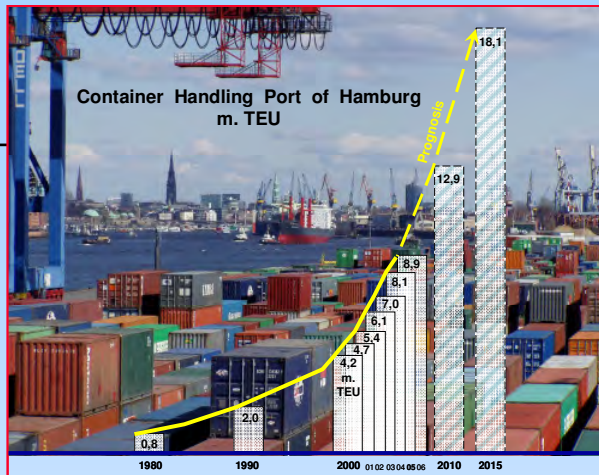
Port Logistics- Challenges of the Future



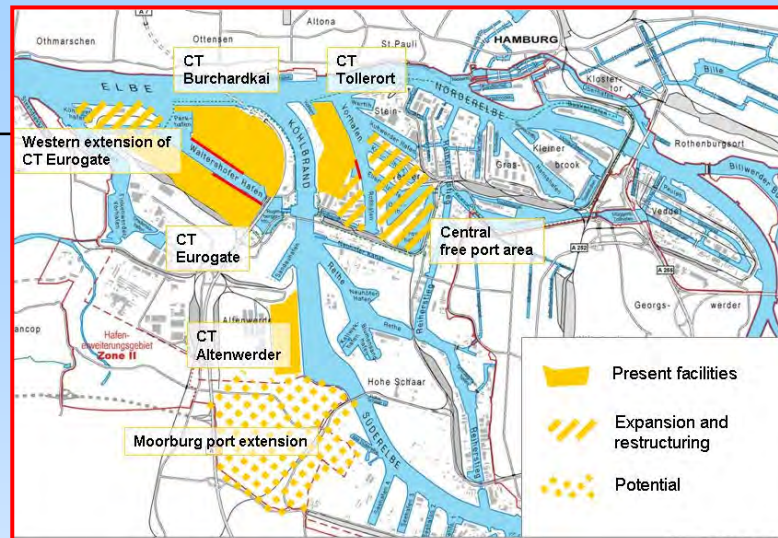
Wolfgang Hurtienne
Hamburg Port Authority

Head of Port Planning

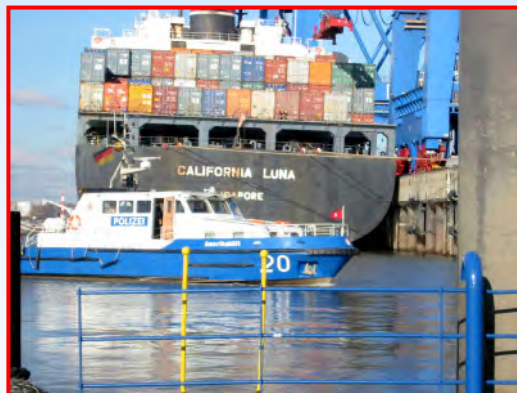
E-Mail: Wolfgang.Hurtienne@hpa.Hamburg.de



Prognosis of Container Handling

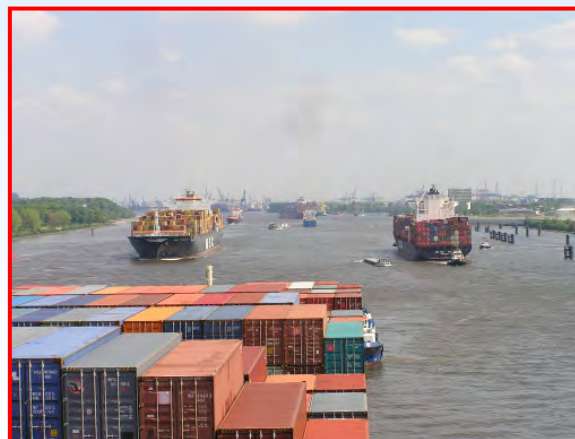


Expansion of Terminal Capacities and Infrastructure



High Safety and Security Standard

CHALLENGES of the Future



Intensive Usage of Navigable Waterways



Larger and Faster Ships

... and Others



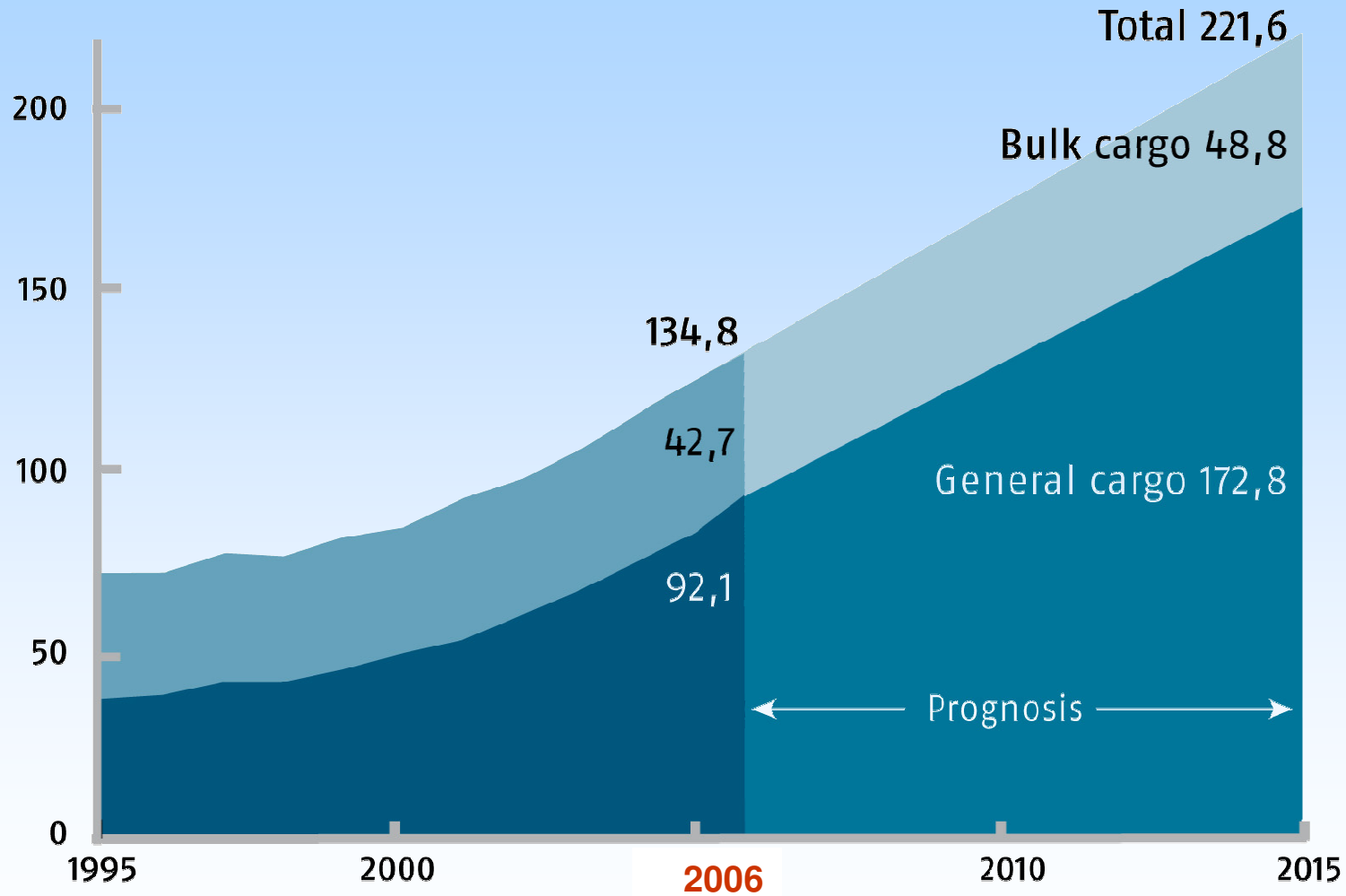
Port of Hamburg



Quelle: LGV Orthofotos 2003, HT 111-5, 050113
Datei : Fol2198-03a.ppt
Fol.Nr.: 2198-03



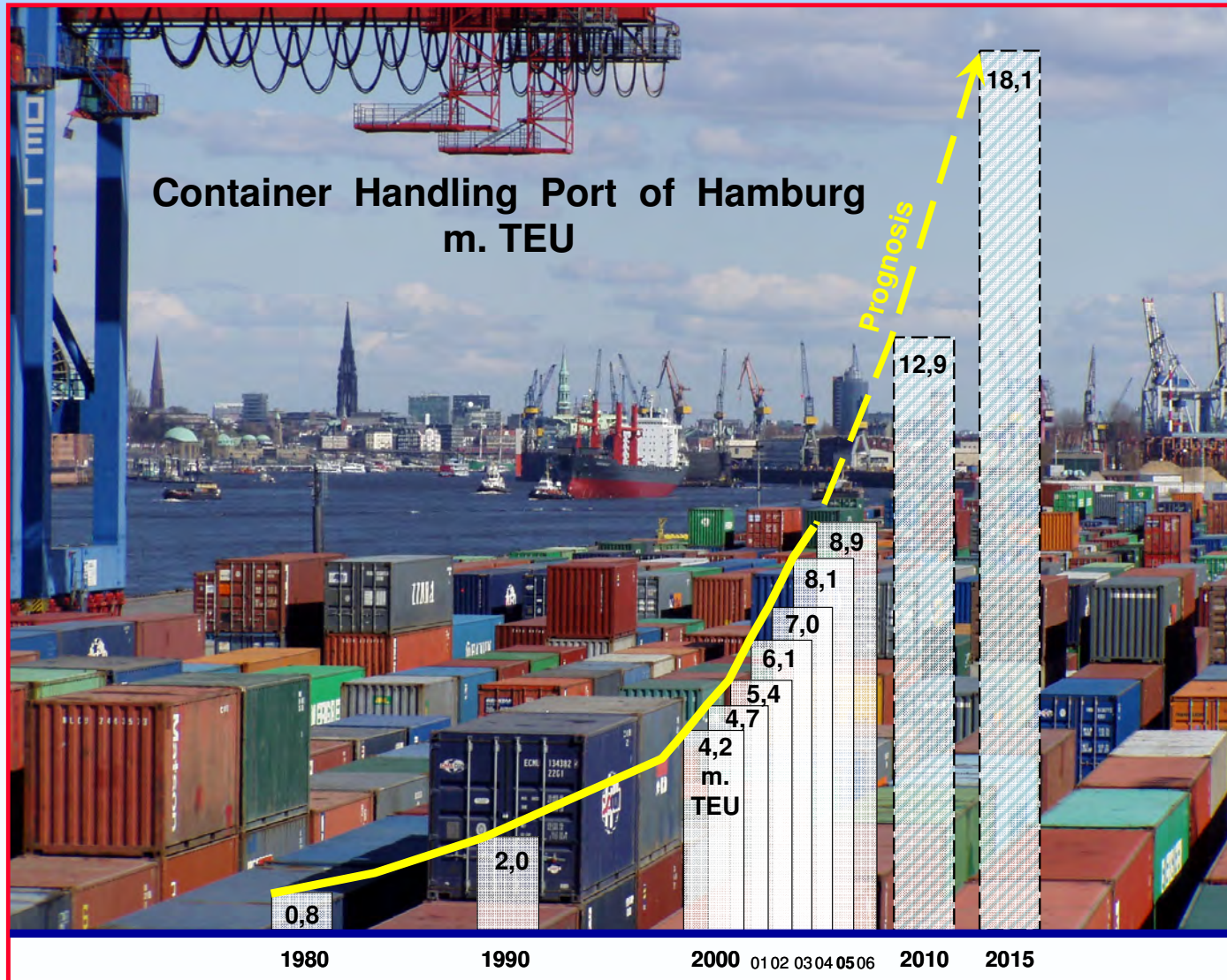
Total Cargo handling (t)- Port of Hamburg

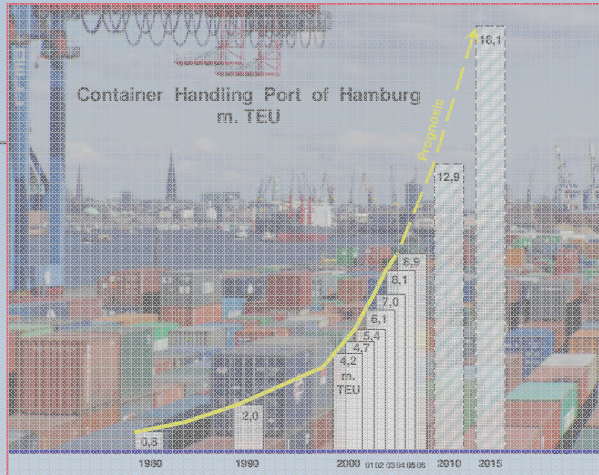


Container share of general cargo 2006: 97,2%

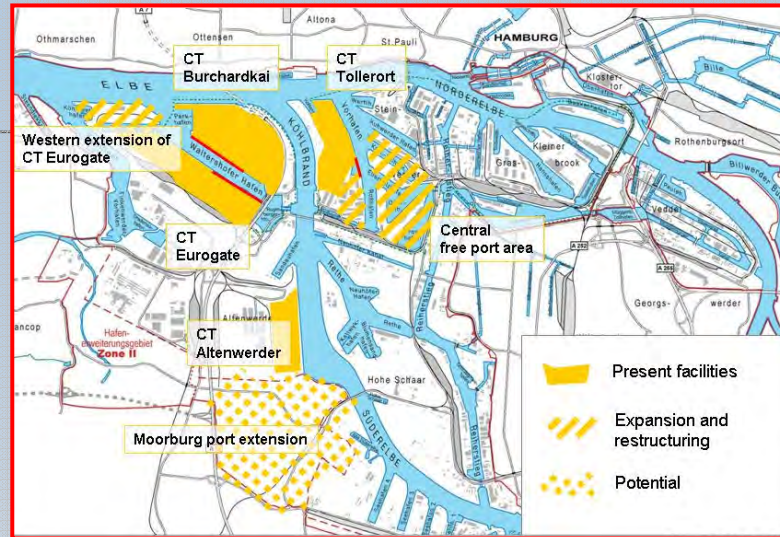


Container Handling (TEU) Port of Hamburg





Prognosis of Container Handling



Expansion of Terminal Capacities and Infrastructure



High Safety and Security Standard

CHALLENGES of the Future



Intensive Usage of Navigable Waterways

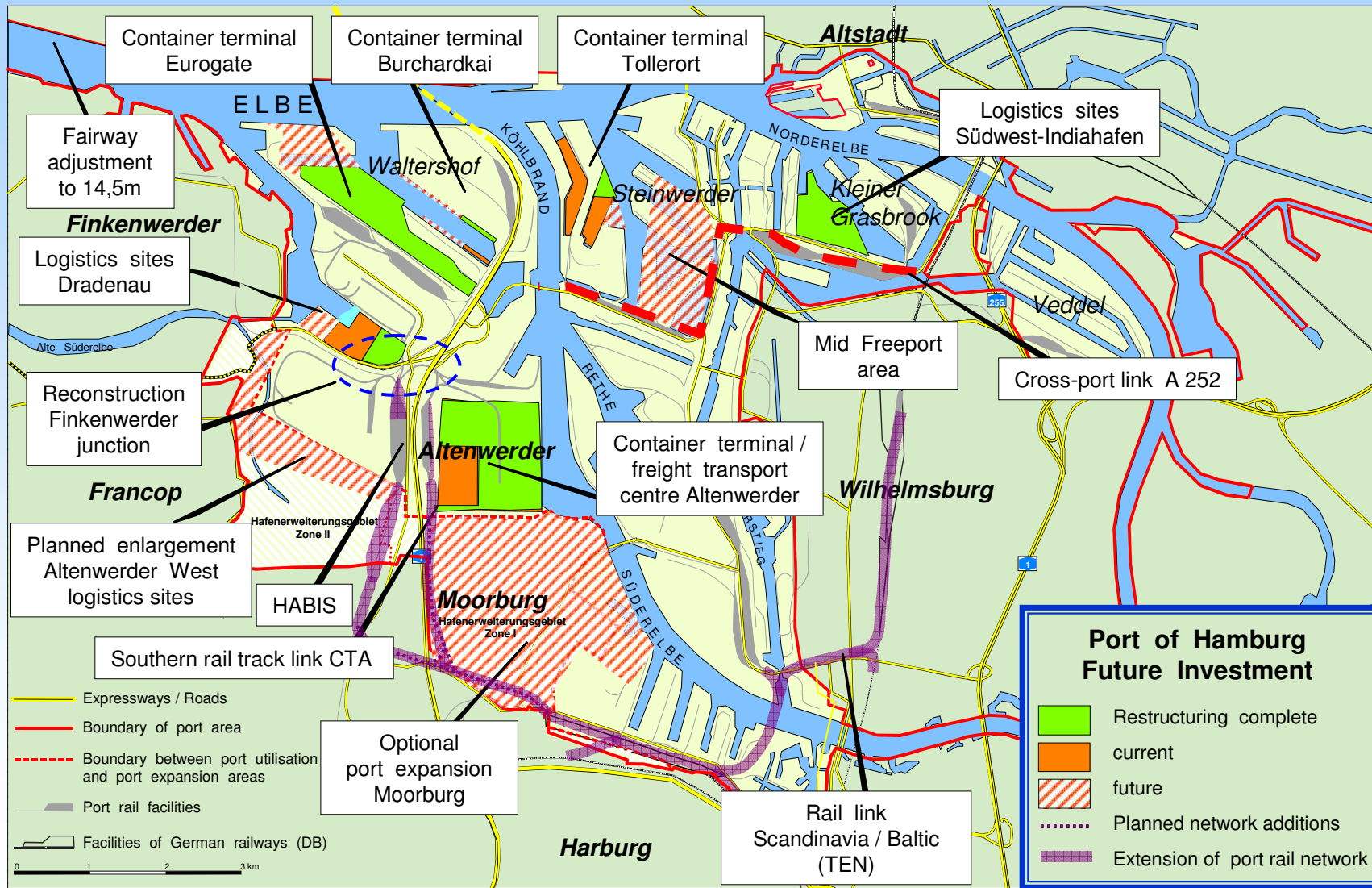


Larger and Faster Ships

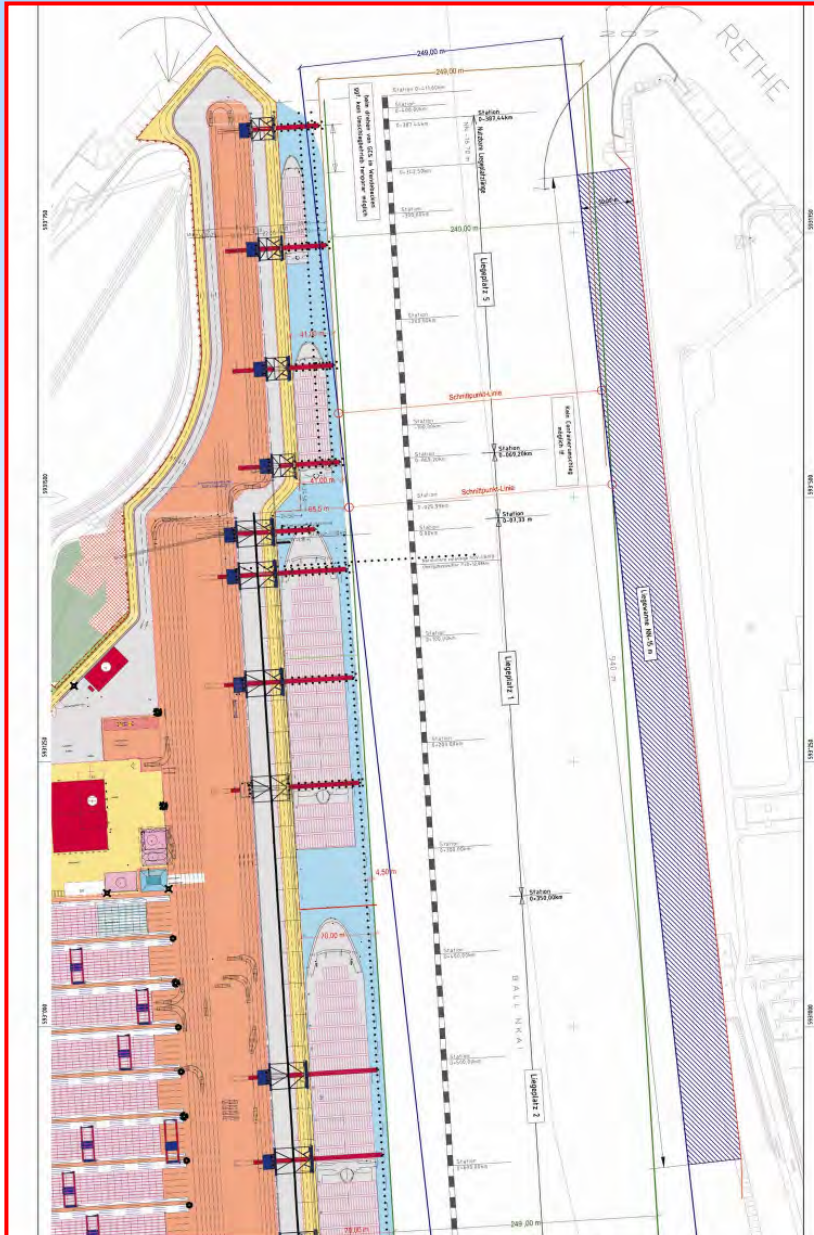
... and Others



Port of Hamburg - Future Investments



Container Terminal Altenwerder



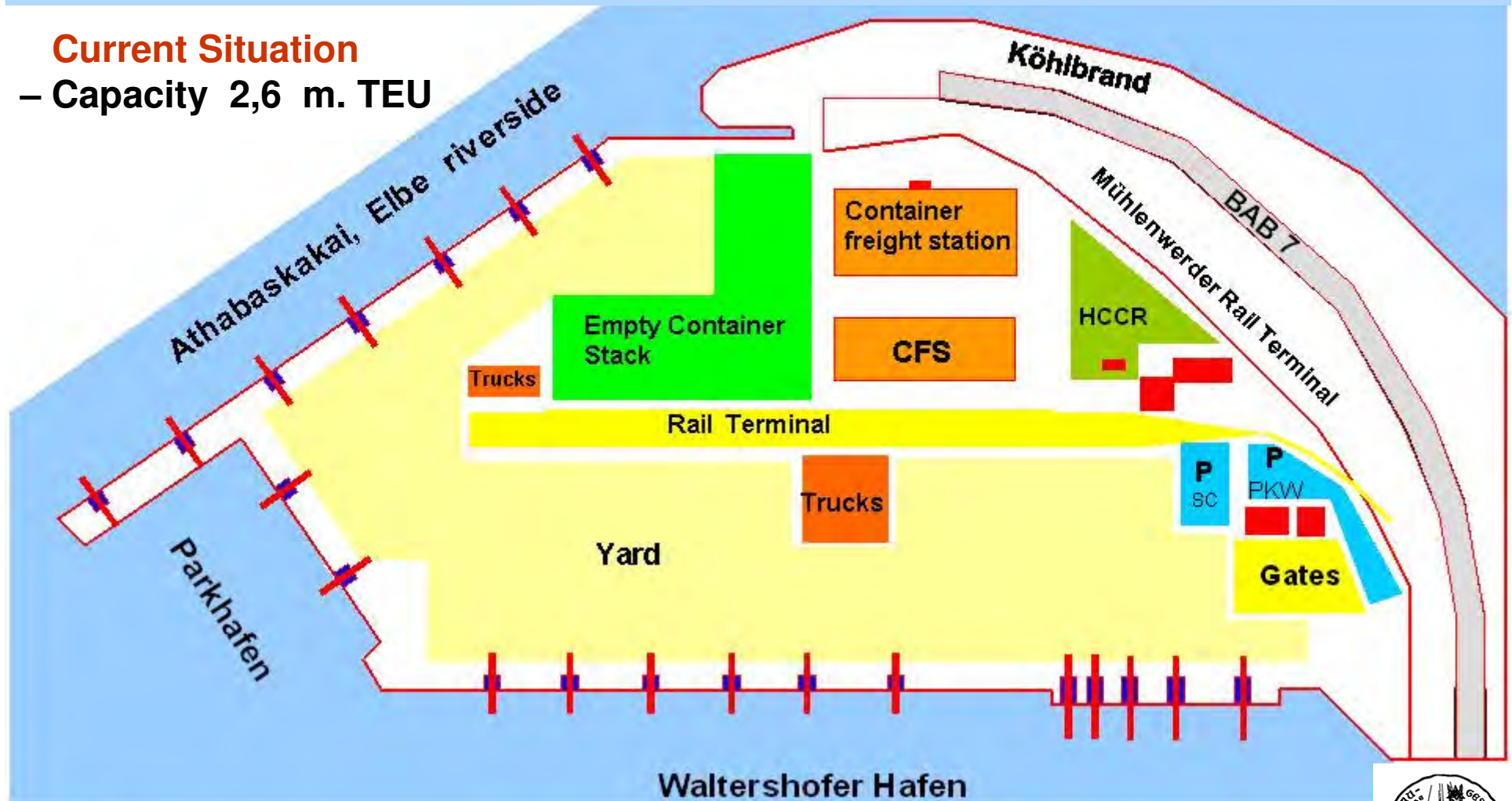
- Further steps:
Northern Extension - 5. berth (first draft)

Quelle: HPA 191, 111-5, 070607
Datei: Fol2523_CTA-Erweiterung.ppt
Fol.Nr. 2523-1



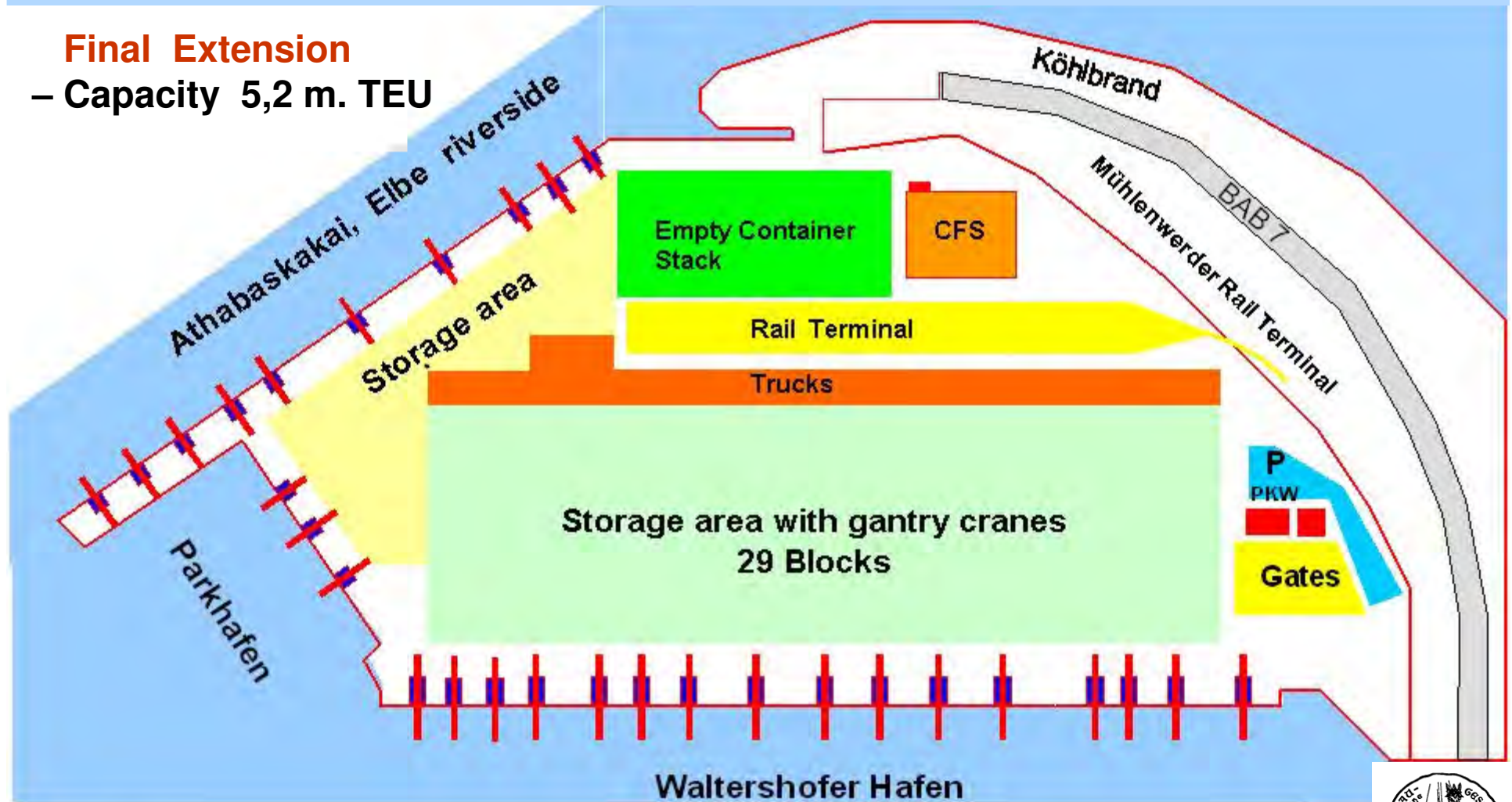
Container Terminal Burchardkai

Current Situation
– Capacity 2,6 m. TEU



Container Terminal Burchardkai

Final Extension
– Capacity 5,2 m. TEU



Container Terminal EUROGATE - Western Extension

currently under planning - Scheduled for completion in 2013/14

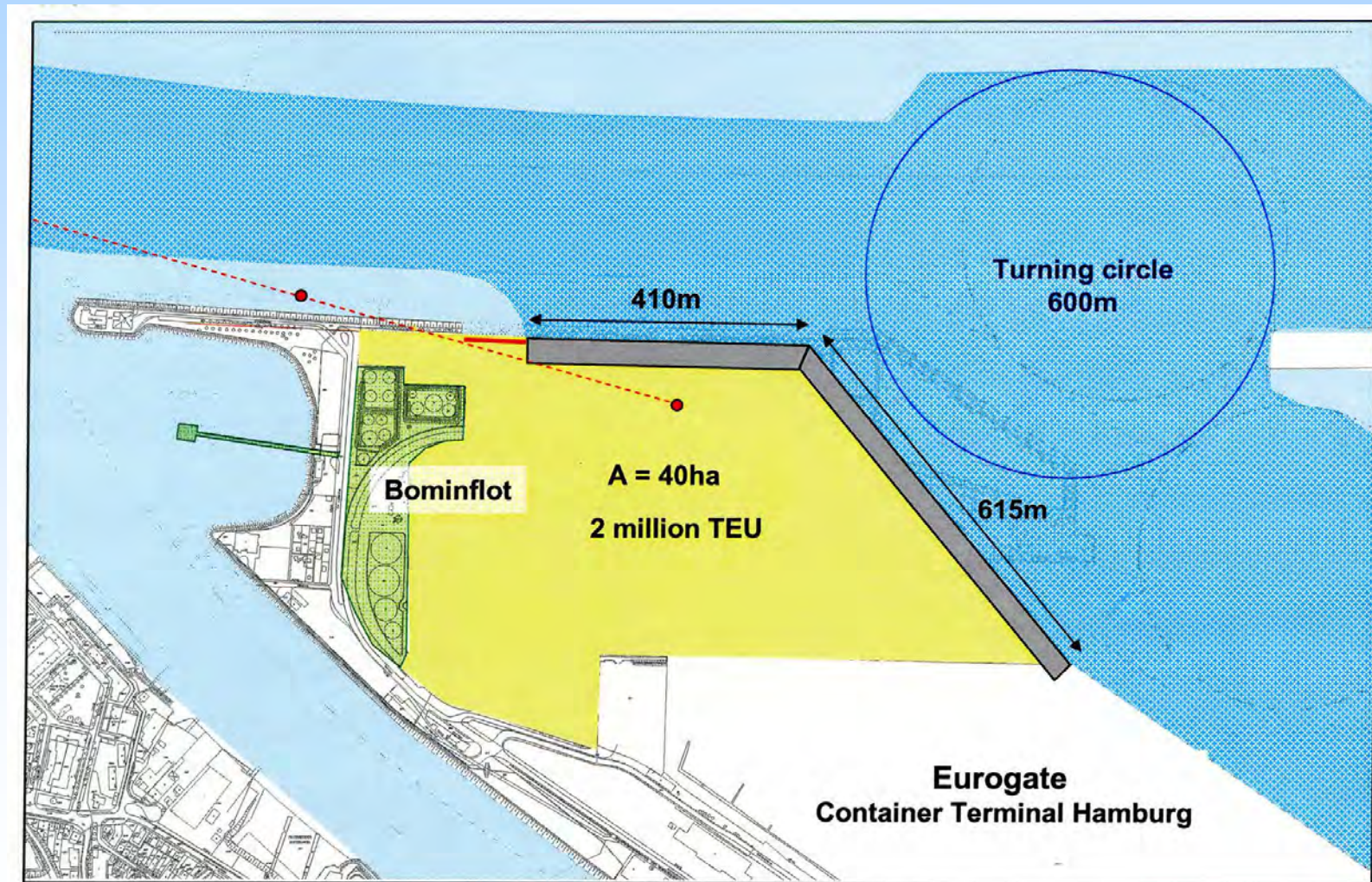


Quelle : HHM 2006, 111-5, 061129
Datei : Fol2483-e-EUROGATE-LB mit Westerweiterung.ppt
Fol.Nr. : 2483-e



Eurogate Western Extension

with a turning circle of 600m



Containerterminal Tollerort

- Construction of additional berths, additional operating and container storage areas
- Planning approval procedure for Berth 5 currently underway, scheduled for completion in 2010



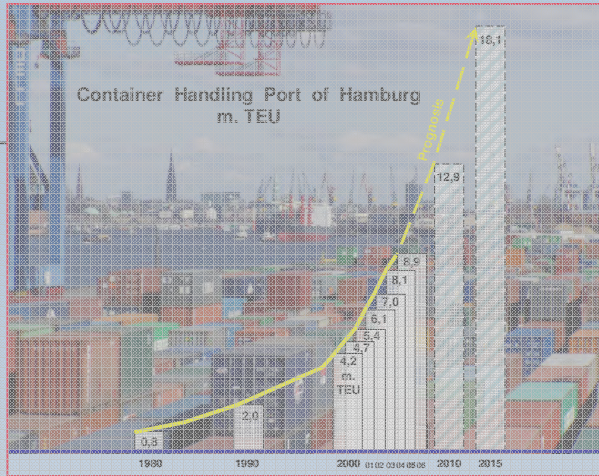
Containerterminal Steinwerder

Central free port

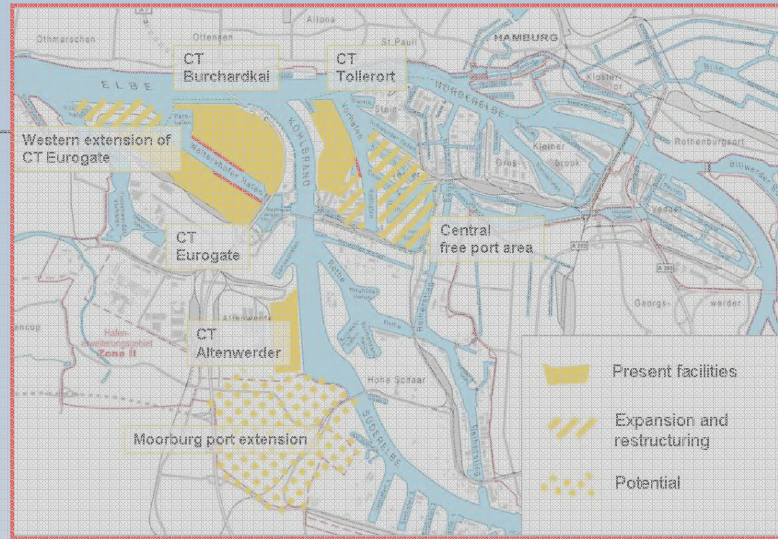
Currently under
planning

Targeted for
completion in
2015/16





Prognosis of Container Handling



Expansion of Terminal Capacities and Infrastructure



High Safety and Security Standard

CHALLENGES of the Future



Intensive Usage of Navigable Waterways



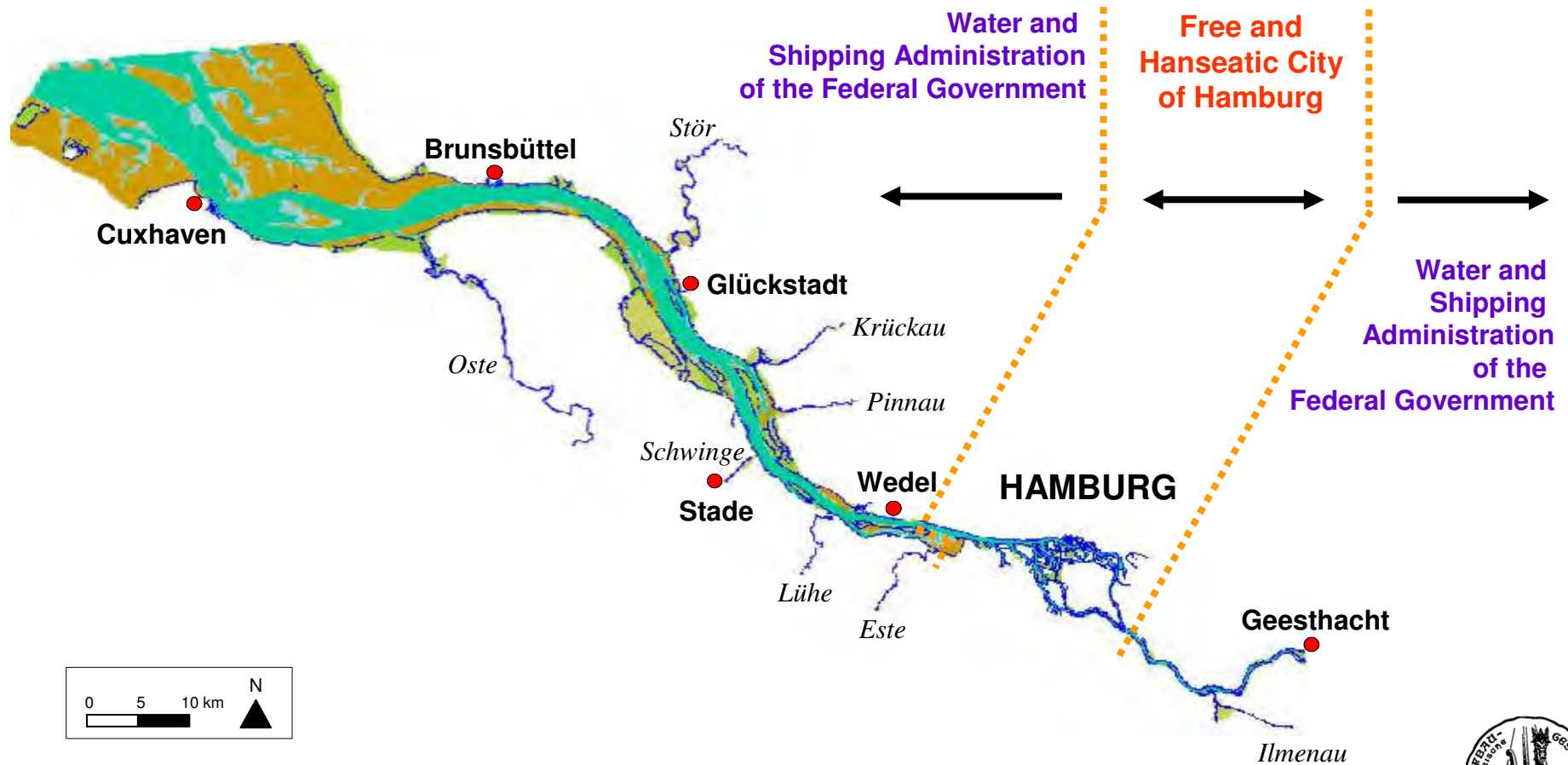
Larger and Faster Ships

... and Others



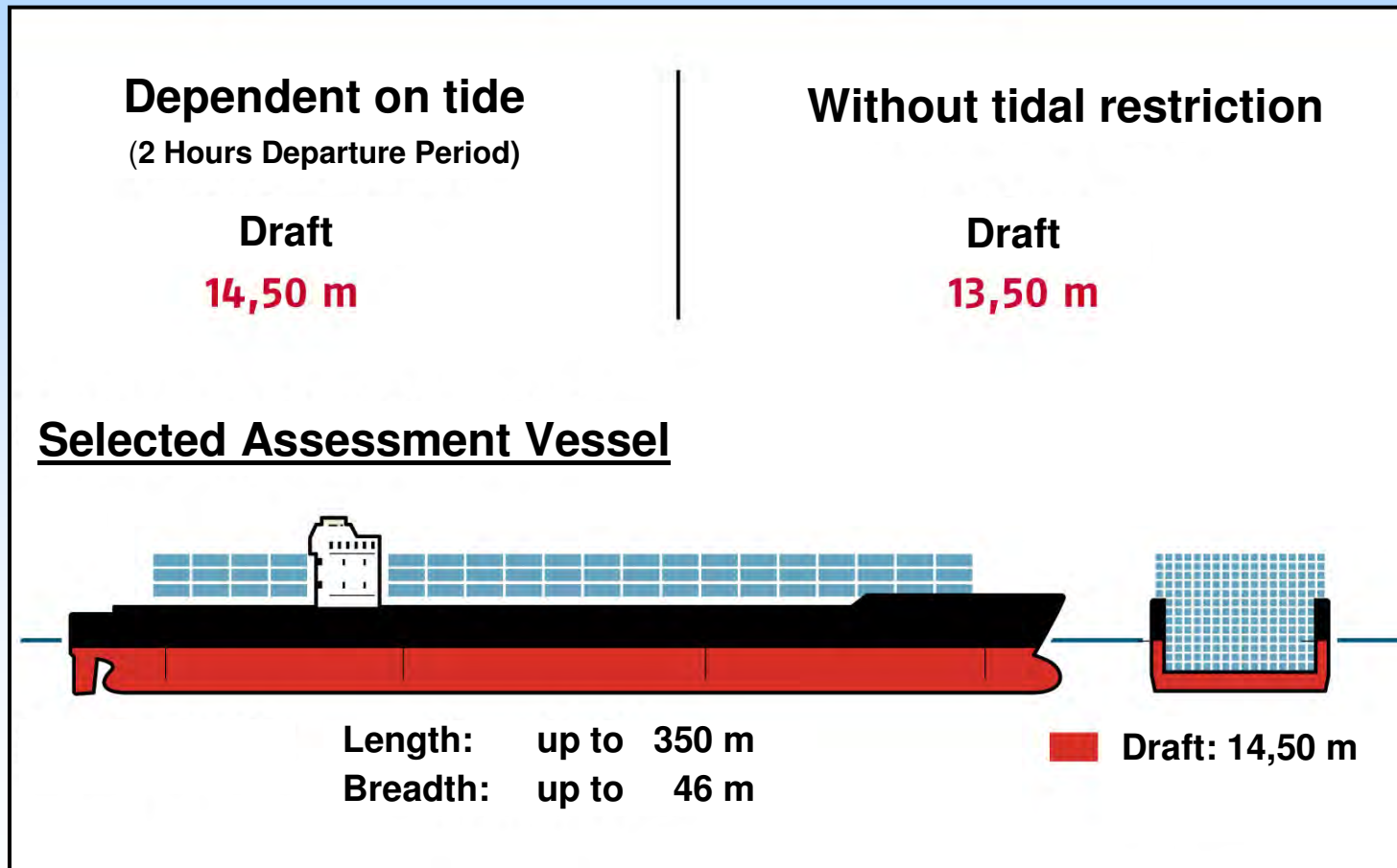
Deepening of the Elbe River

Responsibilities in the Area of Lower and Outer Elbe

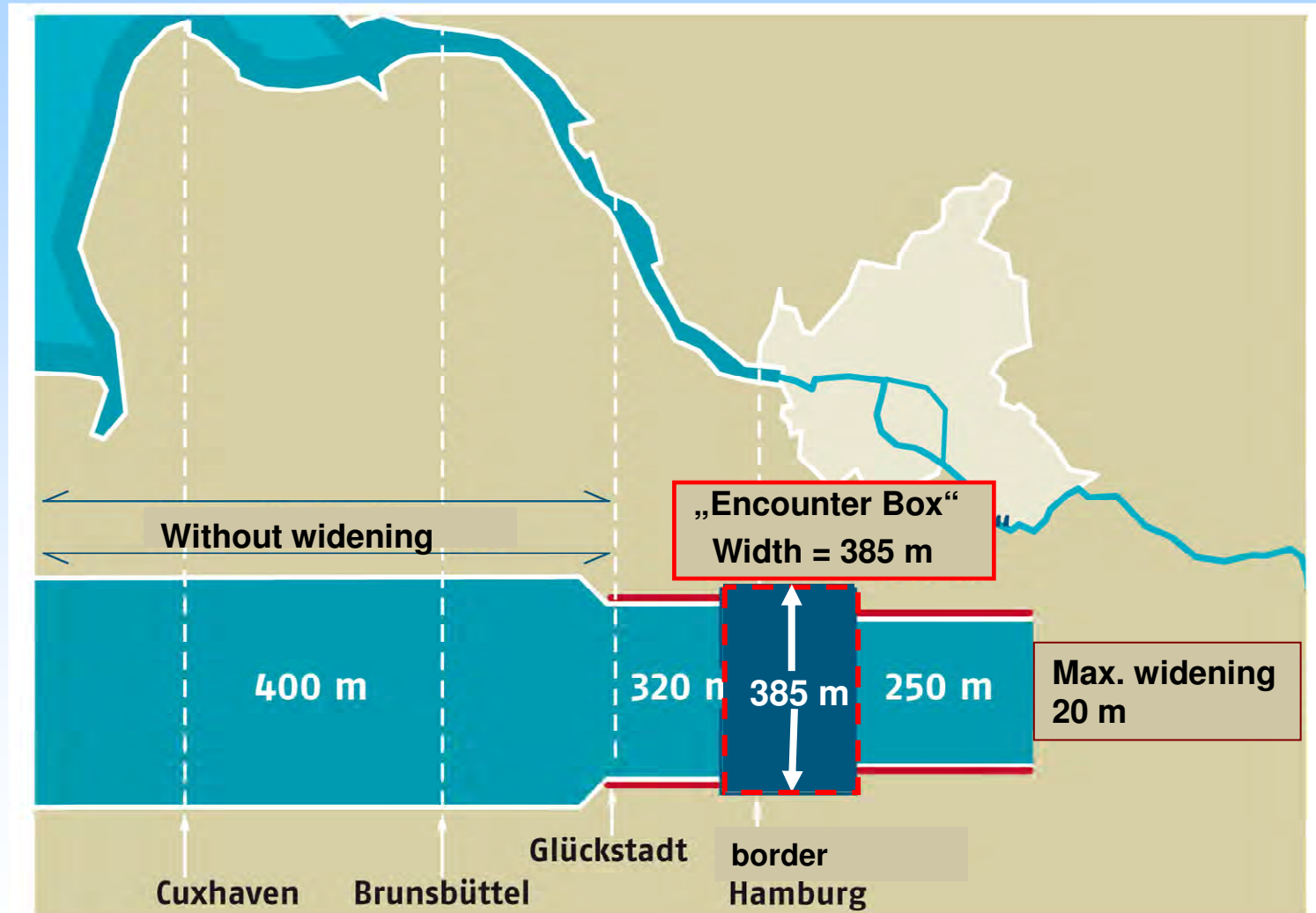


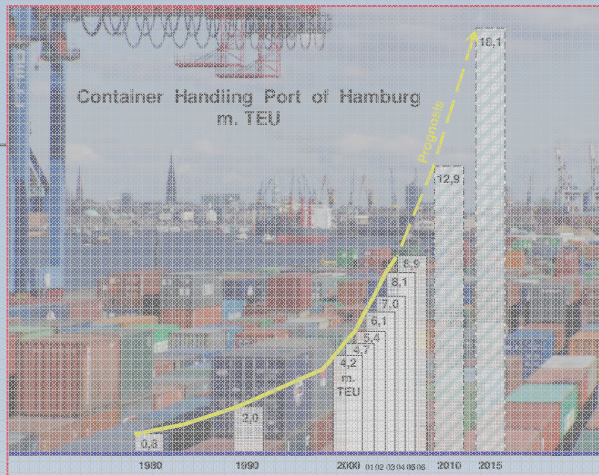
Objectives of the planned Fairway Adaption

(Drafts in Salt Water)

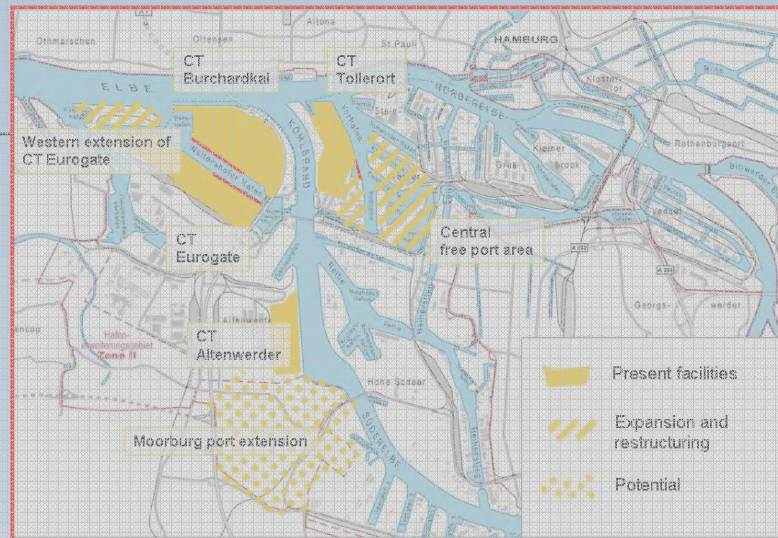


Widening of the fairway Elbe





Prognosis of Container Handling



Expansion of Terminal Capacities and Infrastructure



High Safety and Security Standard

CHALLENGES of the Future

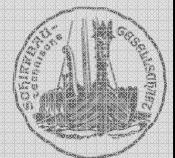


Intensive Usage of Navigable Waterways



Larger and Faster Ships

... and Others



Increasing Shipping Traffic

Challenge:

Available water surface cannot grow to the same extent as the increased shipping traffic would require

Methods of resolution:

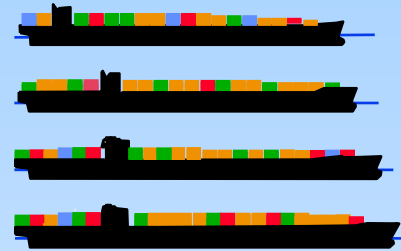
- Simulation of Vessel Traffic- Elbe
- Ship Handling Simulator
- Optimisation of Ship Calls



Simulation of Vessel Traffic – Port and Elbe



Cargo Handling



Ship fleet

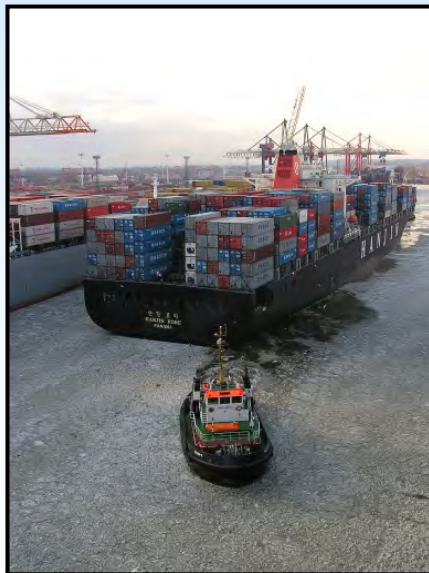
**MAIN INPUT-
PARAMETER**
(Simulationmodel)



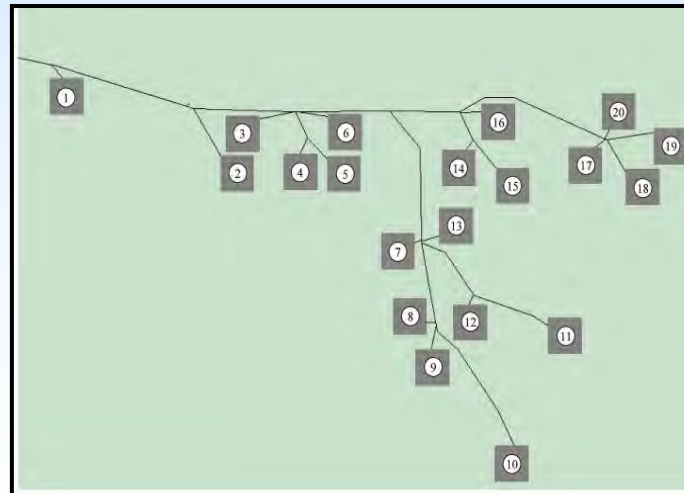
Traffic Regulations
and Restrictions

Traffic Relations

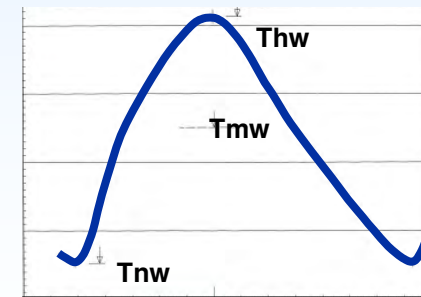
- NOK/Sea
- Sea/Hamburg
- Sea/Elbe-Ports/NoK



Weather Conditions



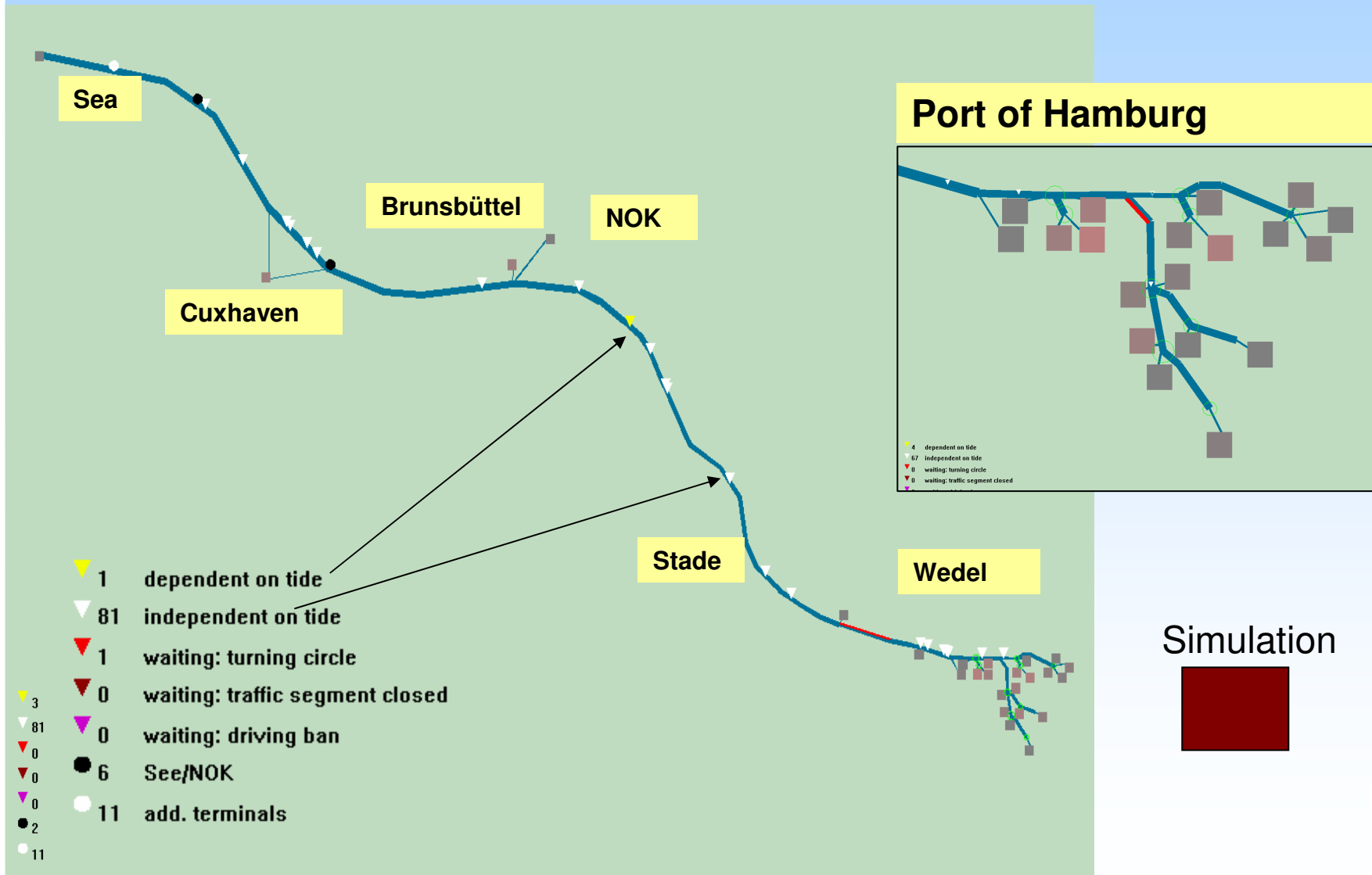
Port layout with turning circles
and cargo handling areas



Tide tables



Simulation of Vessel Traffic – Port and Elbe



Analysis Options:

- **Sensitivity Analysis with different assumptions of prognosis e.g. cargo handling, ship calls, ship development**
- **Evaluation of alternative extension or capacity scenarios concerning the consequences on ship traffic**
- **Simulation of Traffic management strategies**



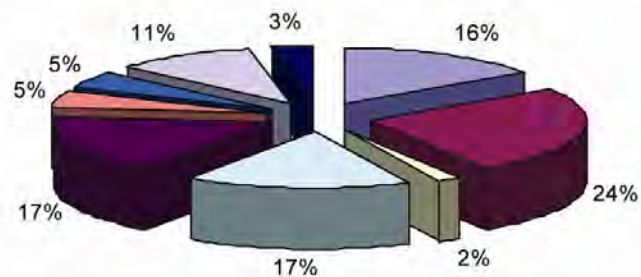
Simulation of Vessel Traffic – Port and Elbe

Example: Analysis of turning circles

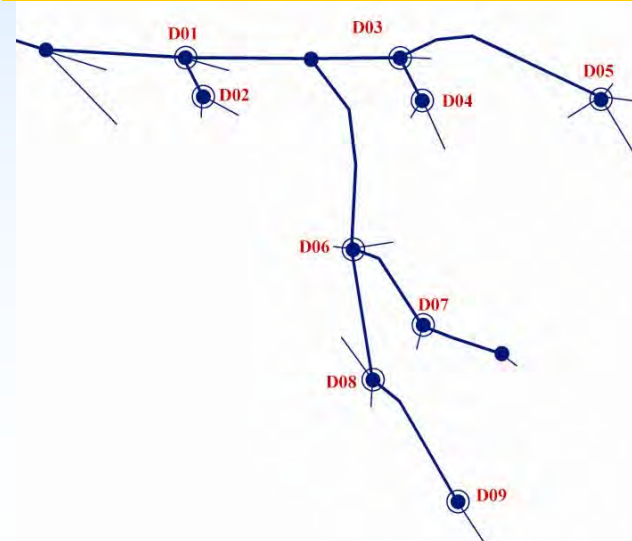
	no. of turning vessels	Closing time	Total no. of vessels waiting	Max. waiting queue	Aver. Waiting time	Total wait. time
D01	795	396:32	1954	11	0:15	495:49
D02	1292	624:05	1840	10	0:16	502:44
D03	93	46:14	88	6	0:16	23:29
D04	856	402:36	616	7	0:16	164:55
D05	876	436:47	207	4	0:16	53:54
D06	238	109:20	206	6	0:14	49:32
D07	250	97:22	35	3	0:13	7:28
D08	537	268:36	451	6	0:17	126:21
D09	149	56:10	9	2	0:11	1:41
			5406		0:15	1425:53

Port of Hamburg Turning Circles

Use of turning circles

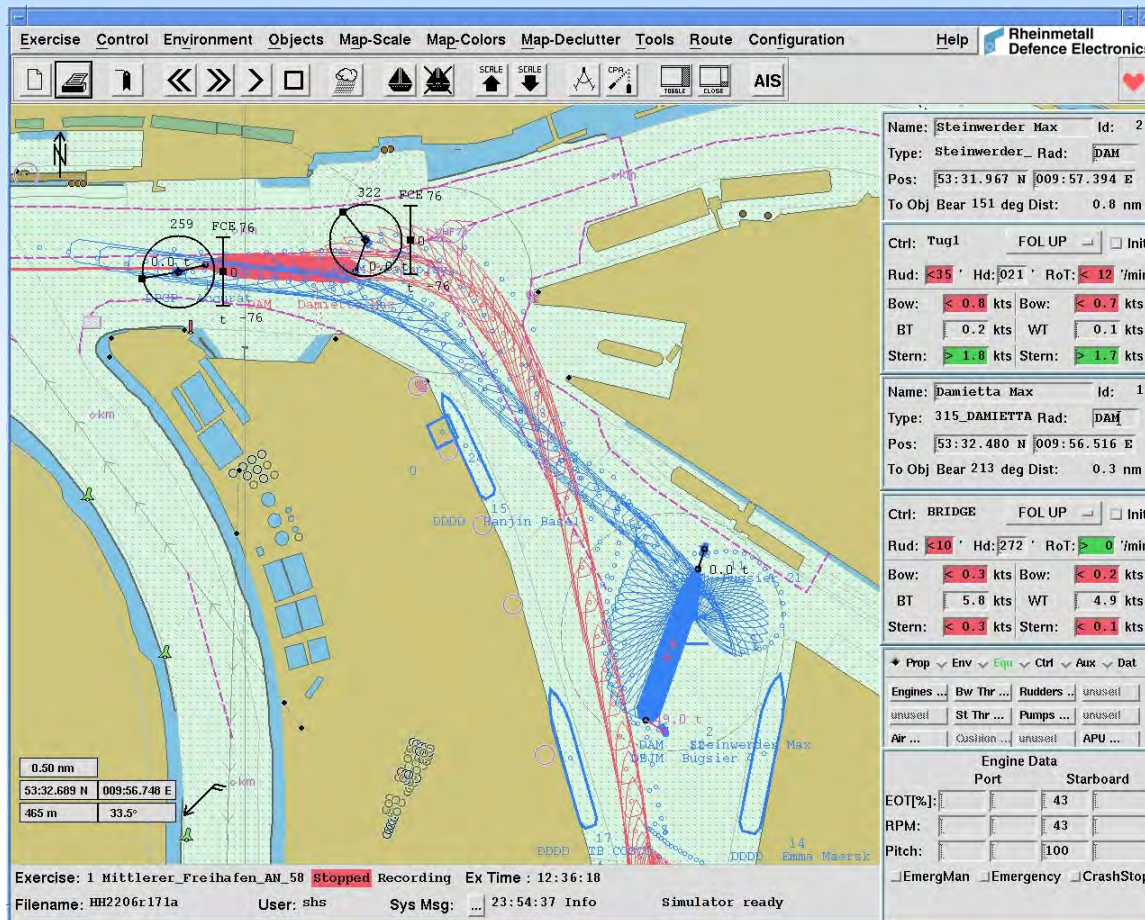


D01
 D02
 D03
 D04
 D05
 D06
 D07
 D08
 D09



Ship Handling Simulator

- Planning of waterways, port basin and turning circles



The screenshot displays the simulator's interface with a map of a port basin. Two vessels are highlighted with red and blue navigation paths. The interface includes a menu bar, a toolbar, and a detailed data panel for the selected vessels.

Parameter	Value
Name	Steinwerder Max
Type	Steinwerder_Rad
Pos	53:31.967 N 009:57.394 E
To Obj	Bear 151 deg Dist: 0.8 nm
Ctrl	Tug1 FOL UP
Rud	<35 Hd:021 RoT: <12 /mir
Bow	< 0.8 kts
BT	0.2 kts
Stern	> 1.8 kts
Name	Damietta Max
Type	315_DAMIETTA Rad
Pos	53:32.480 N 009:56.516 E
To Obj	Bear 213 deg Dist: 0.3 nm
Ctrl	BRIDGE FOL UP
Rud	<10 Hd:272 RoT: >0 /mir
Bow	< 0.3 kts
BT	5.8 kts
Stern	< 0.3 kts

Exercise: 1 Mittlerer Freihafen_AN_58 Stopped Recording Ex Time: 12:36:18
 Filename: HH2206r171a User: shs Sys Msg: 23:54:37 Info simulator ready



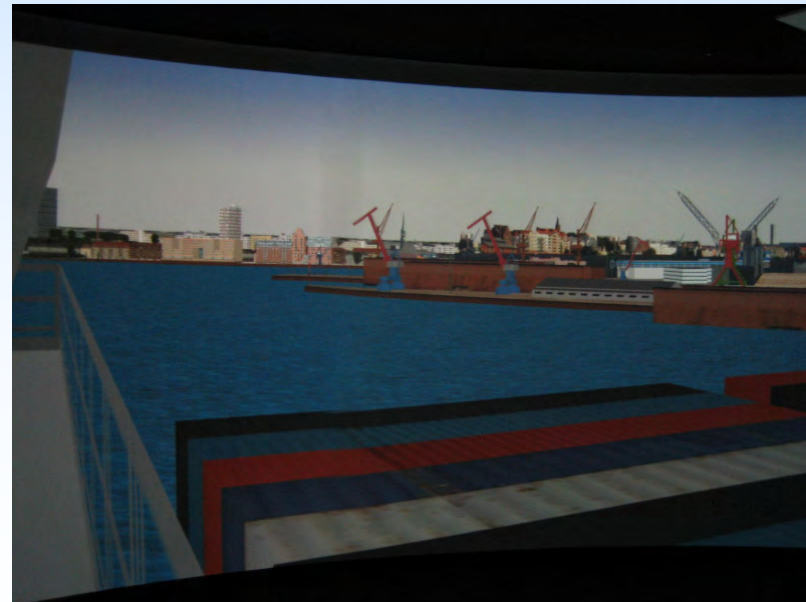
For example:
Central free port



Ship Handling Simulator

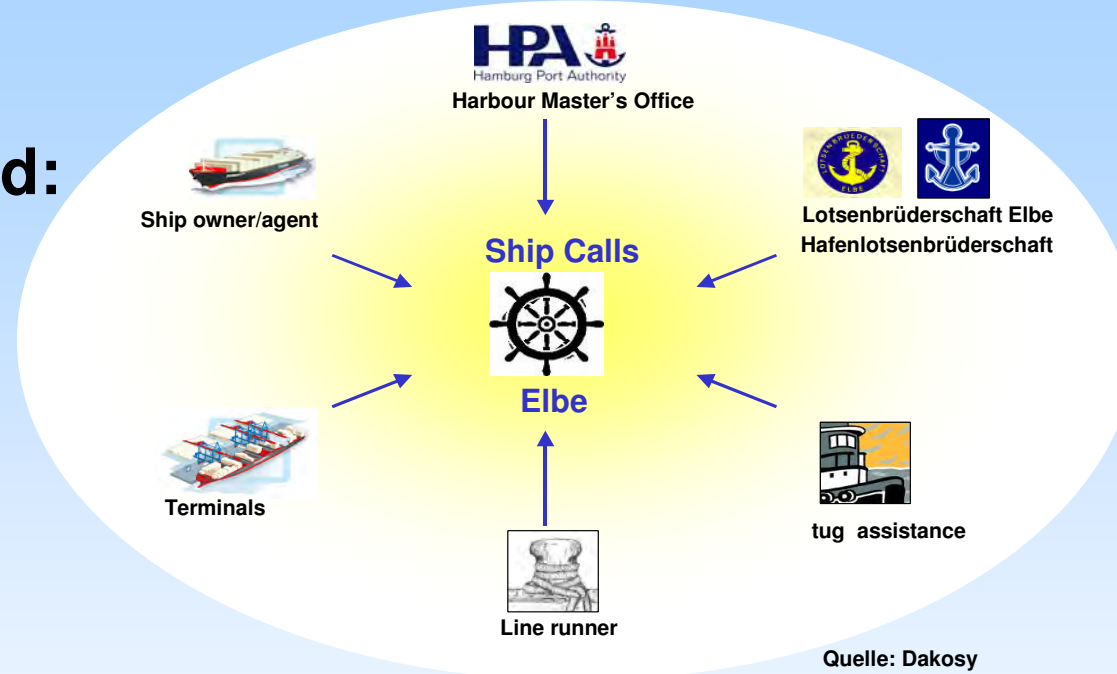


- Training of the harbour pilots and VTS- personnell
- Development of improved manoeuvre strategies



Optimisation of Ship Calls

Parties involved:



Disturbance of the scheduling of Ship calls

- delay of upcomer (delay at previous port, tidal restrictions, technical problems, weather conditions, ...)



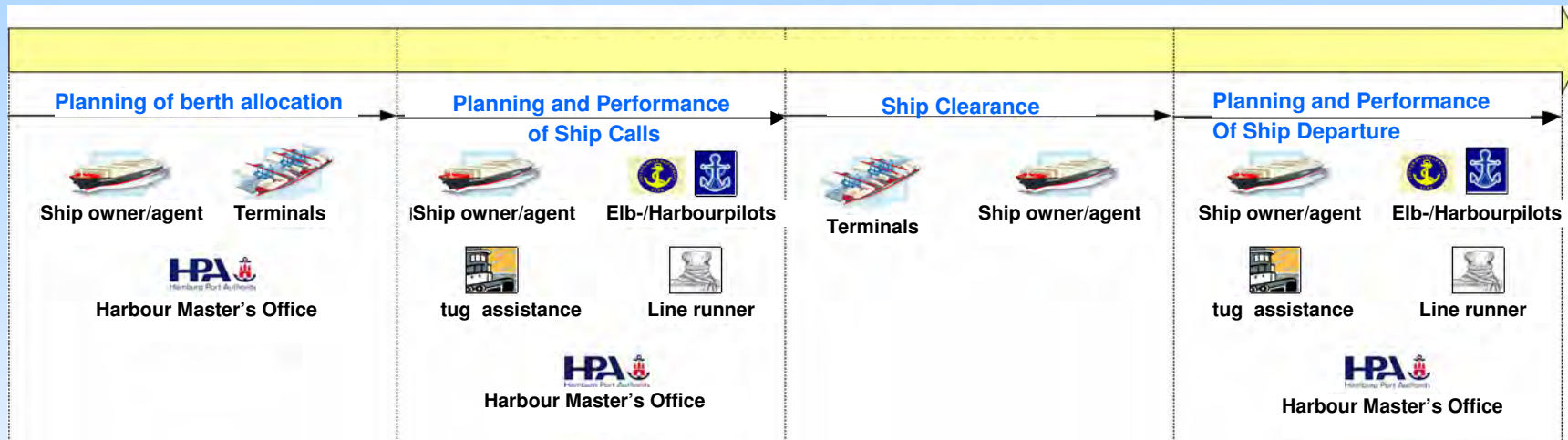
- delay of dispatching
⇒ planned berth not available (lack of cargo, tidal restrictions,)

Working Group with all parties to enhance the flow of information



Optimisation of Ship Calls

Process from Ship Call to Ship Departure



Quelle: Dakosy

Problems within the information chain

- no continuous information between the several processes
- lack of standardisation for formal procedures, eg. Registration
- different sources of information

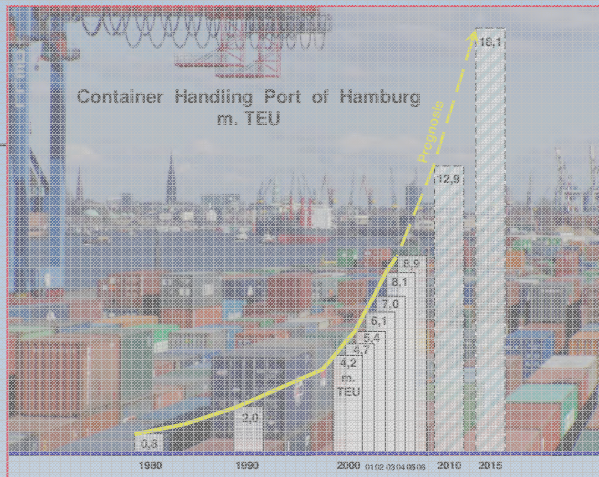


Possible Solution:

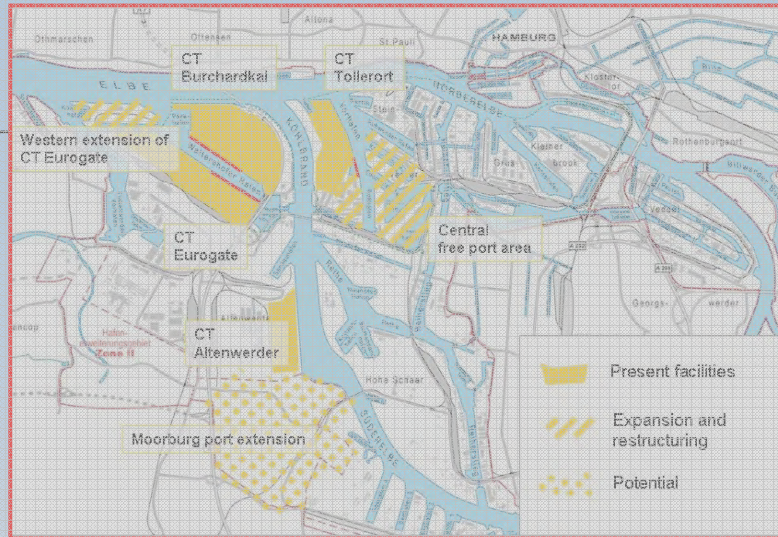
Information Platform

⇒ automated electronic exchange of information within the parties of the process of ship call to ship departure

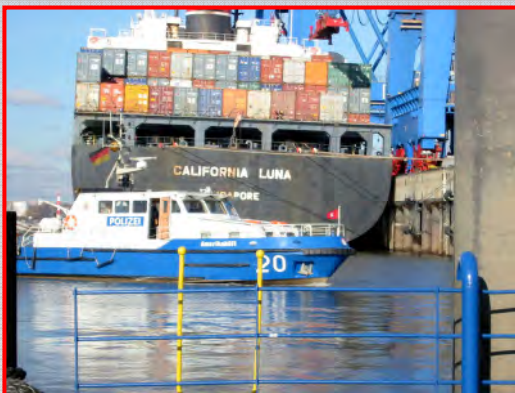




Prognosis of Container Handling



Expansion of Terminal Capacities and Infrastructure



High Safety and Security Standard

CHALLENGES of the Future



Intensive Usage of Navigable Waterways



Larger and Faster Ships

... and Others

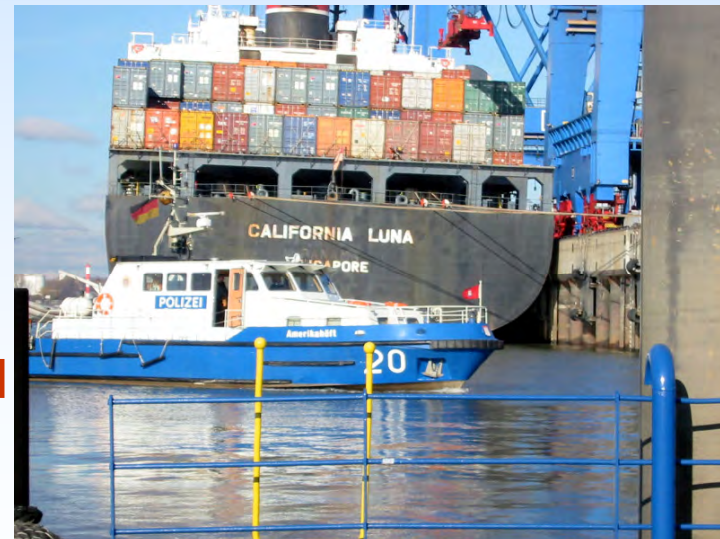


Designated Authority „DA Hafensicherheit Hamburg“

- was established in the summer 2004
- consists of staff members of the Harbours Master Office and the water police
- is managed by the Ministry of the Interior

Good cooperation between the terminal operators/organisations and the DA Hafensicherheit Hamburg

⇒ **High Safety and Security Standard and also efficient ship handling**





Thank you for listening



SHIP EFFICIENCY

by STG

